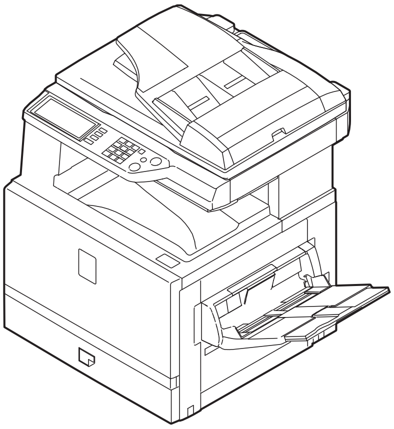
SHARP **SERVICE MANUAL**

CODE: 00ZARC170MA1E



DIGITAL FULL COLOR MULTIFUNCTIONAL SYSTEM

MODEL AR-C170M

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Parts marked with "⚠" are important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

SHARP CORPORATION

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The contents are subject to change without notice.

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[1] OUTLINE

1. Product features

No.	Feature	Content	Employed technology
1	Compact, lightweight, A3 tandem engine	670 x 676 x 787mm (26.4 x 26.6 x 31 inch) about 84.5kg (about 186 lbs.) (Excluding the main unit + photoconductor/toner cartridge)	Mono-component wax-free toner, LED printhead
	High speed output	Color: 17 PPM (A4/LT) B/W: 26 PPM (A4/LT)	Same document continusly on A4 (LT) plain paper in non offset mode.
2	High-speed, first color copy	Color: Within 11.7 sec B/W: Within 8.0 sec A4, without pre-scan, RSPF not used, side paper exit, tray 1 used	LED printhead
3	Manual paper feed capacity	300 sheets/64g (17 lbs.)	Development of a large capacity manual feed tray
	Heavy paper support	64 to 300g/m^2 (17 to 80 lbs.) (Manual paper feed tray)	Oil-less fusing unit, paper feed/ paper transport technology
	Heavy paper duplex feed support	64 to 200g/m^2 (17 to 54 lbs.) (Face up paper exit)	
4	Improved user maintenance	Paper jam process: 2 positions of open/close (sides)	Paper jam control technology
		Toner supply: Cartridge replacement	Mono-component wax-free toner
5	Improved service maintenance	Developing section: Mono-component development eliminates the need for developer replacement.	Mono-component wax-free toner
		Drum section: Cartridge replacement	Designed for easy maintenance
		Fusing section: Simplified structure by wax-free. The unit can be disassembled simply by releasing the lock with the knob.	Mono-component wax-free toner. Designed for easy maintenance
		Transfer section: One-touch extraction. Designed for easy belt replacement.	Designed for easy maintenance
		Color resist automatic adjustment: Visual judgment by paper exit is automatically performed.	Process control technology, which allows user adjustment.

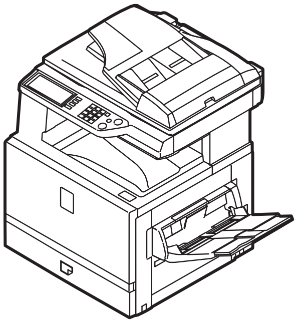
2. Newly employed technology

	Item	Content	Remark
1	LED printhead employed	• Employment of the 4bit LED provides 16-gradation expressions for each of YMCK. • Free from mechanical noises which are produced from the unit such as an LSU. Printing is started immediately without waiting for stabilization of the polygon motor speed. • Lower power consumption than an LSU	Resolution: 600dpi (Total dots: 7,424 dots)
2	Oil-less fusing system employed	• Development of a new wax-free toner • The wax-free fusing system provides a simplified structure and improved paper feed capability. • Notes and remarks can be put on a copy image similar to normal page.	

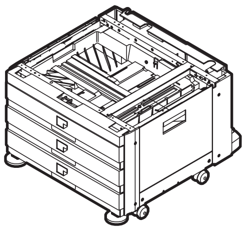
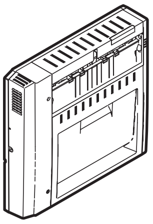
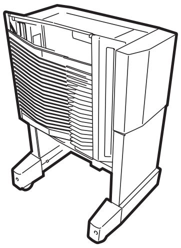
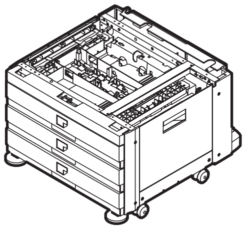
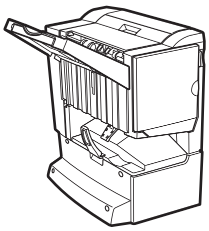
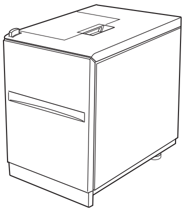
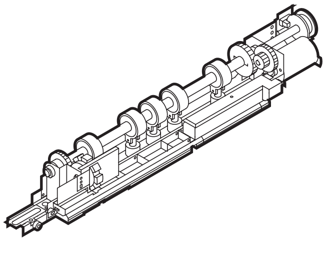
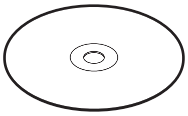
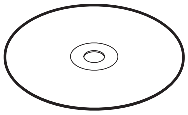
[2] CONFIGURATION

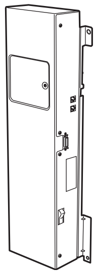
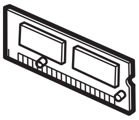
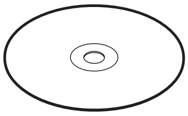
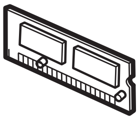
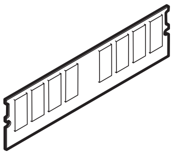
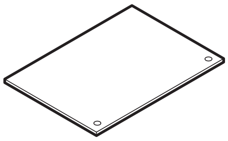
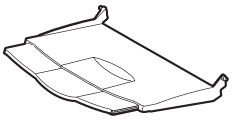
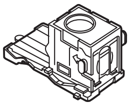
1. Product Line and options

A. Line of machines

Model name	Composition
AR-C170M	Copier/Printer model
	

B. Line of options

		
AR-D18N/Paper feed module (3-stage paper feed desk) AR-D17N/Paper feed module (1-stage paper feed desk)	AR-RB1/Duplex bypass/Inverter unit (Requires Desk.)	AR-S11/20 bin sorter
		
AR-D19N/Duplex module + Paper feed module (2-stage) (Requires Duplex bypass/Inverter unit (AR-RB1).)	AR-F13/Saddle finisher (Requires Duplex bypass/Inverter unit (AR-RB1).)	AR-LC8/Large capacity tray (Requires AR-D17N/D18N/D19N.)
		
AR-PN1A, AR-PN1B, AR-PN1C, AR-PN1D/ Punch unit (for saddle stitch finisher (AR-F13))	AR-NS2/Network scanner expansion kit	AR-U11, AR-U15/Sharpdesk license kit

		
AR-FX10/Facsimile expansion kit	AR-MM9/FAX memory (8MB)	AR-PK4/PS3 expansion kit
		
AR-FR19N/Data security kit	AR-SM5/256MB expansion memory	AR-EB8/Scanner interface board
		
AR-TE3/Exit tray	AR-SC2/Staple cartridge	

C. Machine configuration list

STD or ❍ (Yes) : Included in the set. (Included in the base engine.)
OP : Option
N/A or × (No) : No support or no setup

Basic composition	Copier/Printer	Remark
Supply system	SRU	
AR drum cartridge × 4	❍	
AR toner cartridge × 4	OP	
Scanner attached	❍	
Printer controller board (Base memory: 128 MB)	❍	
HDD	❍	
NIC	❍	
ICU memory	256MB	
Fax-Box	OP	
JOB SHIFTER	❍	
OC	×	
RSPF	❍	
Dehumidifier (2 parts for scanner and engine)	For service kit	

D. Combination of options list

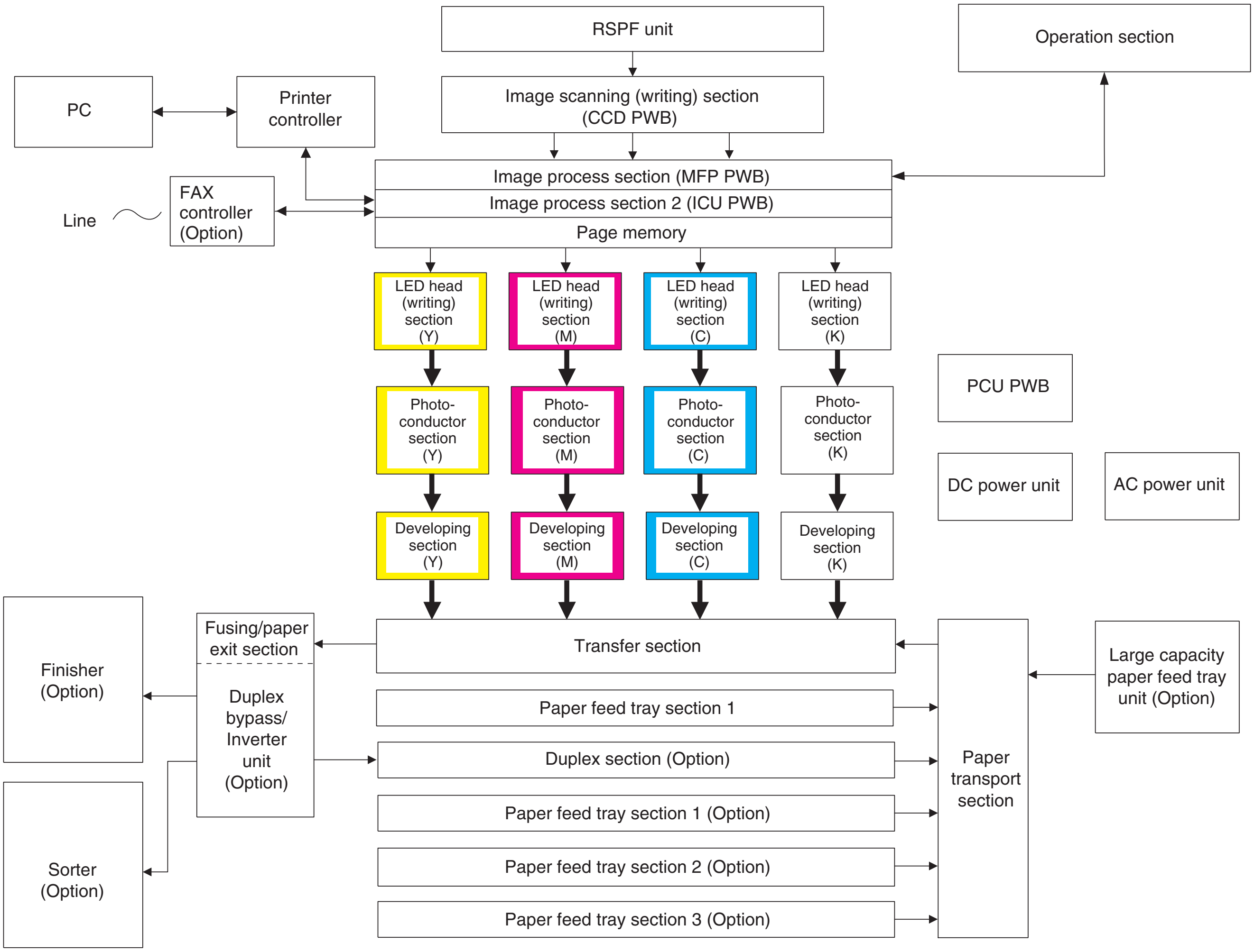
STD or ○ (Yes) : Included in the set. (Included in the base engine.)
OP : Option
N/A or × (No) : No support or no setup

Section	Item	Copier/Printer	Remark
Automatic document feeder and scanning	Integrated scanner unit	STD	
	OC	×	
	RSPF	STD	
	Trial network scanner function	OP	AR-EB8 (Requires scanner interface board)
Paper feed system/Duplex	One-stage tray (Standard provision of the machine)	STD	500 × 1 (80g/m^2) 550 × 1 (64g/m^2)
	Manual paper feed tray (Standard provision of the machine)	STD	250 sheets (80g/m^2) 300 sheets (64g/m^2)
	1-stage paper feed desk (AR-D17N)	OP	500 × 1 (80g/m^2) 550 × 1 (64g/m^2) ∗ A 2-stage paper feed desk with duplex cannot be used.
	3-stage paper feed desk (AR-D18N)	OP	500 × 3 (80g/m^2) 550 × 3 (64g/m^2) ∗ A 2-stage paper feed desk with duplex cannot be used.
	2-stage duplex paper feed desk (AR-D19N)	OP	Requires a duplex bypass/inverter unit. / 3-stage paper feed desk cannot be used.
	Reverse bypass module (AR-RB1)	OP	Requires desk (3-stage/2-stage duplex paper feed desk)
	Large capacity tray (AR-LC8)	OP	Requires 2-stage duplex paper feed desk
Paper exit system	Paper exit tray (AR-TE3)	OP	
	Job shifter	STD	
	Saddle finisher (AR-F13)	OP	Requires a desk (3-stage/2-stage paper feed desk with duplex) and a duplex bypass/inverter unit.
	Punch unit (AR-PN1A/PN1B/PN1C/PN1D)	OP	For saddle finisher
	20 bin sorter (AR-S11)	OP	Requires a desk (3-stage/2-stage paper feed desk with duplex) and a duplex bypass/inverter unit.
	Staple cartridge (AR-SC2)	OP	For saddle finisher
Electrical system	Printer controller	STD	7410: 400 MHz type
	Scanner interface board (AR-EB8)	OP	
	Installed memory	128MB	For printer board
	NIC	STD	
	HDD (3.5 inch)	STD	40GB
	PS3 expansion kit (AR-PK4)	OP	Requires 512MB memory. Product Key
	128MB expansion memory ∗1		Local arrangement: For ICU or printer controller
	256MB expansion memory ∗1		Local arrangement or AR-SM5: For ICU or printer controller
	Network scanner expansion kit (AR-NS2)	OP	Product Key Requires memory expansion of 256MB or more and HDD. Requires a scanner expansion board.
	Sharpdesk license kit (AR-U11/U15)	OP	
	Various connection cables	Not supported.	Unavailable as an option (Use a commercially available part.)
FAX system	Fax controller (AR-FX10)	OP	
	Fax memory (8 MB) (AR-MM9)	OP	
Other	Data security kit (AR-FR19N)	OP	

∗1: The AR-SM5 (256MB) can be used. For the other memories, choose among commercially available ones (table below) and set.

Manufacture	P/N	Description
Kingston	SHP32X64S133C3-B	256MB, PC133, DIMM
	SHP16X64S133C3	128MB, PC133, SODIMM
	SHP16X64S133C3-B	128MB, PC133, DIMM
	SHP32X64S133C3	256MB, PC133, DIMM
	D1664A30	128MB, 168 PIN
	D3264A30	256MB, 168 PIN
Memory Experts	MXAR2372128B	128MB, PC100 OR PC133, 168 PIN
	MXAR2371256	256MB, PC100 OR PC133, 168 PIN
	MXAR2371128	128MB, PC100 OR PC133, 168 PIN
	MXARSM5	256MB, PC100 OR PC133, 168 PIN
RAM components	MIMD1289A63N1621E16E	128MB, 168 PIN PC133
	MIMD1289A63N3221H16E	256MB, 168 PIN PC133
IO DATA	LP-S100-128M	
	LP-S100-256M	

2. Block diagram


RSPF unit
Operation section
PC
Printer controller
Image scanning (writing) section (CCD PWB)
Image process section (MFP PWB)
Image process section 2 (ICU PWB)
Page memory
Line
FAX controller (Option)
LED head (writing) section (Y)
LED head (writing) section (M)
LED head (writing) section (C)
LED head (writing) section (K)
PCU PWB
Photo-conductor section (Y)
Photo-conductor section (M)
Photo-conductor section (C)
Photo-conductor section (K)
DC power unit
AC power unit
Developing section (Y)
Developing section (M)
Developing section (C)
Developing section (K)
Finisher (Option)
Fusing/paper exit section
Duplex bypass/ Inverter unit (Option)
Transfer section
Large capacity paper feed tray unit (Option)
Paper feed tray section 1
Duplex section (Option)
Paper transport section
Paper feed tray section 1 (Option)
Paper feed tray section 2 (Option)
Paper feed tray section 3 (Option)
Sorter (Option)

[3] SPECIFICATIONS

1. Basic specifications

A. Base engine

(1) Type

Type	Desk-top
Color support	Full color

(2) Engine speed

Paper size	Color (4bit)		B/W (1bit)	
	Print	Copy	Print	Copy
A4	17 ppm	17 cpm	26 ppm	26 cpm
8.5" x 11"	17 ppm	17 cpm	26 ppm	26 cpm
A5/8.5" x 5.5"	17 ppm	17 cpm	26 ppm	26 cpm
B5	17 ppm	17 cpm	26 ppm	26 cpm
B4/8.5" x 14"	10 ppm	10 cpm	15 ppm	15 cpm
A3/11" x 17"	8 ppm	8 cpm	13 ppm	13 cpm

∗ When continuous copying of single document/print speed and offset function OFF.

(3) Engine composition

<table>
<tr><td>Photoconductor kind</td><td colspan="6">OPC (Drum diameter: ϕ30mm x 4)</td></tr>
<tr><td>Copying method</td><td colspan="6">Electrostatic copying system employing the LED writing head</td></tr>
<tr><td>LED available print area</td><td colspan="6">301 mm</td></tr>
<tr><td>Developing system</td><td colspan="6">Contact, non-magnetic 1-component development</td></tr>
<tr><td>Charging system</td><td colspan="6">Saw teeth scorotron corona charging</td></tr>
<tr><td>Transfer system</td><td colspan="6">Transfer belt structure direct transfer system</td></tr>
<tr><td>Cleaning system</td><td colspan="6">Counter blade cleaning system</td></tr>
<tr><td>Fusing system</td><td colspan="6">Pressure roller fusing system</td></tr>
<tr><td>Fusing unit life</td><td colspan="6">2 years or 100K</td></tr>
<tr><td>Fusing unit replacement</td><td colspan="6">Replaceable 30min after turning off the power</td></tr>
<tr><td rowspan="6">Mode switching speed (A → B)</td><td colspan="2" rowspan="2"></td><td colspan="4">B</td></tr>
<tr><td>Normal paper</td><td>Heavy paper 1</td><td>Heavy paper 2</td><td>OHP</td></tr>
<tr><td rowspan="4">A</td><td>Normal paper</td><td>–</td><td>30 sec</td><td>40 sec</td><td>40 sec</td></tr>
<tr><td>Heavy paper 1</td><td>30 sec</td><td>–</td><td>40sec</td><td>40 sec</td></tr>
<tr><td>Heavy paper 2</td><td>40 sec</td><td>10 sec</td><td>–</td><td>50 sec</td></tr>
<tr><td>OHP</td><td>45 sec</td><td>10 sec</td><td>20 sec</td><td>–</td></tr>
<tr><td>Oil supply</td><td colspan="6">Oil-less system</td></tr>
<tr><td>Waste toner process</td><td colspan="6">Self collection of each toner cartridge
Waste toner box collection for transfer belt</td></tr>
<tr><td>Multi print speed (at Max.)</td><td colspan="6">B/W: 26 ppm (A4/Letter)
Color: 17 ppm (A4/Letter)
[In the case of manual paper feed]
B/W: 26 ppm (A4/Letter)
Color: 17 ppm (A4/Letter)</td></tr>
<tr><td>Shifter</td><td colspan="6">Standard</td></tr>
<tr><td>Dehumidifier</td><td colspan="6">Service kit</td></tr>
</table>

(4) Shifter

<table>
<tr><td>Type</td><td colspan="4">Shifter</td></tr>
<tr><td>Paper weight</td><td colspan="4">64 to 105g/m², 106 to 200g/m²</td></tr>
<tr><td rowspan="2">Paper size (64 to 200g/m²)</td><td colspan="2">Non offset mode (Simple load)</td><td colspan="2">A3W to A6R,
12" x 18" to 8.5" x 5.5"</td></tr>
<tr><td colspan="2">Offset mode</td><td colspan="2">A3 to A6R,
11" x 17" to 8.5" x 5.5"</td></tr>
<tr><td>Productivity</td><td colspan="4">Non offset mode: Color 17 sheets, B/W 26 sheets
Offset mode: Color 16 sheets, B/W 24 sheets</td></tr>
<tr><td>Offset width</td><td colspan="4">30mm</td></tr>
<tr><td rowspan="3">Alignment *1</td><td></td><td>Extending</td><td>FR shift</td><td>Between jobs</td></tr>
<tr><td>Non offset mode</td><td>Must not fall from the tray.</td><td>—</td><td>—</td></tr>
<tr><td>Offset mode</td><td>Within 50mm</td><td>Within ± 10mm</td><td>10mm or more</td></tr>
</table>

∗1: When A4/Letter recommended paper is used.

(5) Engine resolution

Resolution	Writing: 600dpi x 600dpi		
Smoothing	None		
Gradation	When copying	Color	Writing: 1 pixel 16 gradations for each color (4 bit) *1
		B/W	Writing: 1 pixel 2 gradations (1bit)
	When printing	Color	Writing: 1 pixel 2 gradations (1 bit) 16 gradations for each color (4 bit) *1 *2
		B/W	Writing: 1 pixel 2 gradations (1bit) 16 gradations (4 bit) *1

∗1: Dither matrix allows printing in 1-pixel, 256-gradation (8bit).

∗2: For 4bit mode, an expansion memory of 128MB or more is required in the printer controller.

(6) Warm-up

Warm-up time	99sec or less
Pre-heat function	Yes

(7) Jam recovery time

With the left cover and front cabinet open	About 60 sec	Left for 60sec Normal condition
With the right cover open	About 8 sec	

(8) Image chip (Printable area)

Full size	Total circumference 4mm ± 2mm Only when A3 full image is outputted, 6mm or less in total.

∗ In A3/11" x 17" full image copy, there is no image chip in A3/WLT image.

∗ When outputting cut position marks, printing can be made in the range of image chip specification.

∗ When using RSPF, however, A3 full image copy cannot be made.

(9) Power source

Voltage	220 V/240 V
Frequency	50/60 Hz
Power cord	Inlet type

(10) Power consumption

Max. power consumption	1.5 kW
Sleep mode	80 W or less

(11) Noise/Ozone

Noise	Operating	B/W	63 dB or less (First)
		Color	63 dB or less (First)
	Stand-by		40 dB or less
	Sleep		40 dB or less
Ozone			0.02 g/m^3 or less

(12) External dimensions

External dimensions	670 x 676 x 787 mm (26.4 x 26.6 x 31 inch)

(13) Weight

Weight	Copier body: 81.5kg (180 lbs.) Copier body + photoconductor: 84.5kg (186 lbs.) Copier body + photoconductor + toner: 91.5kg (201 lbs.)

(14) Machine occupying dimensions

Machine occupying dimensions: (With manual feed tray/paper exit tray extended)	1349 x 676 mm (53.1 x 26.6 inch)

B. Paper feed unit

(1) Machine paper feed tray

Paper feed system	1-stage tray
Paper feed size	AB series: A3, B4, A4, A4R, B5, B5R, A5, Special paper (EXTRA setting) AB tab setting section: A3, B4, A4, A4R, B5, B5R, A5, Special Inch tab setting section 11" x 17", 8.5" x 14", 8.5" x 11", 8.5" x 11"R, 8.5" x 5.5", 7.25" x 10.5"R, EXTRA Inch tab setting section (For Australia) 11" x 17", 8.5" x 14", 216 x 330, 8.5" x 11", 8.5" x 11"R, 8.5" x 5.5", 7.25" x 10.5"R, EXTRA
Paper feed capacity *1	550 sheets (64 g/m^2 (17 lbs.) paper) 500 sheets (80 g/m^2 (21 lbs.) paper, recommended paper for color)
Weight of paper suitable for paper feed	64 to 105 g/m^2 (17 to 28 lbs)
Paper kind	Normal paper (including recommended paper for color), recycled paper, printed paper, punched paper, color paper, letter head
Paper size detection	Slide lever detection
Paper size selection	User selection
Dehumidifier	Service kit
Remaining quantity detection	Yes (0, 25%, 50%, 75%, Full, 5 steps)
Initial size when shipping	A3 (11" x 17")
Tray attach/detach	Possible
Universal support	Universal tray (free size)

*1: Detection of 8.5" x 14" can be changed to detection of 8.5" x 13" (216 mm x 330 mm) by the diag setting.

(2) Manual feed tray (Bypass tray)

Transport reference	Center reference
Paper feed capacity	250 sheets (80 g/m^2), 300 sheets (64 g/m^2), 100 sheets (Postcard)
Paper size	A3W to A6R (Postcard)
Paper weight	64 to 300 g/m^2 / 17 to 80lbs specified paper for color
Paper kind	Normal paper (including recommended paper for color), OHP1, OHP2. heavy paper 1 (106 to 200 g/m^2 (28 to 53 lbs.)), heavy paper 2 (201 to 300 g/m^2 (54 to 80 lbs.)), envelope, specified size paper
Paper size detection	Inch series: 12" x 18", 11" x 17", 8.5" x 14", 8.5" x 11", 8.5" x 11"R, 7.25" x 10.5"R, 8.5" x 5.5", A3, B4, A4, B5, A6R AB series: A3W, A3, B4, A4, A4R, B5, A5, A6R, 11" x 17", 8.5" x 14", 8.5" x 11", 7.25" x 10.5"R
Manual feed size setup	Yes (Ignoring automatic setup) Selected with key operation.

∗ Detection of 8.5" x 14" can be changed to detection of 8.5" x 13" (216 mm x 330 mm) by the diag setting.

C. Paper exit unit

(1) Face down paper exit tray (Top section)

Paper exit position/system	Machine top face down paper exit
Paper exit capacity	500 sheets (A4/LT recommended paper for color)
Paper size	A6R (Postcard), 8.5" x 5.5" to A3W ∗ A3W: Can not used shifter
Paper weight	64 to 200g/m^2 (17 to 53 lbs.)
Paper kind	Normal paper (including recommended paper for color), heavy paper 1 (106 to 200 g/m^2 (28 to 53 lbs.))
Remaining quantity detection	No
Discharged paper full detection	Yes

(2) Face up paper exit tray (sides)

Paper exit position/system	Machine side face up paper exit
Paper exit capacity	250 sheets (A4/LT recommended paper for color)
Paper size	All sizes which are fed
Paper weight	64 to 300 g/m^2 (17 to 80 lbs.)
Paper kind	All sizes which are fed (except for OHP sheets)
Remaining quantity detection	No
Discharged paper full detection	Yes

(3) Face down paper exit tray (side) (With the reverse unit installed)

Paper exit position/system	Machine side face down paper exit
Paper exit capacity	250 sheets (A4/LT recommended paper for color)
Paper size	A3W, A3, B4, A4, A4R, B5, B5R, A5, 12" x 18", 11" x 17", 8.5" x 14", 8.5" x 13", 8.5" x 11", 8.5" x 11"R, Executive-R, 8.5" x 5.5"
Paper weight	64 to 200 g/m^2 (17 to 53 lbs.)
Paper kind	Normal paper*1 (including recommended paper for color), heavy paper (106 to 200 g/m^2 (28 to 54 lbs.))
Remaining quantity detection	No
Discharged paper full detection	Yes

*1: Recommendable color paper, standard paper, recycled paper, printed paper, perforated paper, color paper, letterhead

(4) Face up paper exit tray (side) (With the reverse unit installed)

Paper exit position/system	Machine side face up paper exit
Paper exit capacity	250 sheets (A4/LT recommended paper for color)
Paper size	A3W to A6R (Postcard), 12" x 18" to 8.5" x 5.5", DL, C5, COM-10, Monarch, Long type No. 3, Western type No. 2, Western type No. 4
Paper weight	64 to 300g/m^2 (17 to 80 lbs.)
Paper kind	Normal paper ∗1 (including recommended paper for color), heavy paper (106 to 300 g/m^2 (28 to 80 lbs.)), all other paper which is supported by the machine.
Remaining quantity detection	No
Discharged paper full detection	Yes

*1: Recommendable color paper, standard paper, recycled paper, printed paper, perforated paper, color paper, letterhead

D. Scanner section

(1) Resolution, gradation

Scan resolution (dpi)	600 x 600dpi
Scan speed (opm)	(600 x 600dpi mode) Color 8 opm, B/W 21 opm: A4/LT size (600 x 300dpi mode) B/W 26 opm: A4/LT size (Copy mode)
Scan gradation	256 gradations for each color 2 gradations for scanner B/W mode only
Exposure lamp	Xenon lamp without electrode tube
Output gradation	8bit for each color 1bit for Scanner B/W mode only

(2) Document table

<table>
<tr><td>Scan range</td><td colspan="2">297 x 432 mm or more (A3/WLT full image scan)</td></tr>
<tr><td>Document reference position</td><td colspan="2">Center reference</td></tr>
<tr><td>Detection</td><td colspan="2">Yes</td></tr>
<tr><td rowspan="6">Detection size</td><td colspan="2">Automatic detection</td></tr>
<tr><td rowspan="2">Inch series</td><td><INCH-1: Default>
11" x 17", 8.5" x 14", 8.5" x 11", 8.5" x 11"R, 5.5" x 8.5"</td></tr>
<tr><td><INCH-2>
11" x 17", 8.5" x 13", 8.5" x 11", 8.5" x 11"R, 5.5" x 8.5"</td></tr>
<tr><td rowspan="2">AB series</td><td><AB-1: Default>
A3, B4, A4, A4R, B5, B5R, A5</td></tr>
<tr><td><AB-2>
A3, 8.5" x 13" (216 x 330), A4, A4R, B5, B5R, A5</td></tr>
<tr><td>Manual doc size selection</td><td>Yes</td></tr>
</table>

2. Functional specifications

A. Specifications of copy functions

(1) Copy speed (Continuous copy speed)

Color / B/W		Color				B/W			
Print/Copy		Print	Copy			Print	Copy		
Paper size	Magnification ratio	Normal (100%)	Reduction (25%)	Normal (100%)	Enlargement (400%)	Normal (100%)	Reduction (25%)	Normal (100%)	Enlargement (400%)
A3W (12" x 18")		5 ppm	5 cpm	5 cpm	5 cpm	7 ppm	7 cpm	7 cpm	7 cpm
A3 (11" x 17")		8 ppm	8 cpm	8 cpm	13 cpm	13 ppm	13 ppm	13 ppm	13 ppm
B4 (8.5" x 14" / 8.5" x 13")		10 ppm	10 cpm	10 cpm	10 cpm	15 ppm	15 ppm	15 ppm	15 ppm
A4		17 ppm	17 cpm	17 cpm	17 cpm	26 ppm	26 cpm	26 cpm	26 cpm
8.5" x 11"		17 ppm	17 cpm	17 cpm	17 cpm	26 ppm	26 cpm	26 cpm	26 cpm
A4R (8.5" x 11"R)		12 ppm	12 ppm	12 ppm	12 ppm	19 ppm	19 ppm	19 ppm	19 ppm
B5		17 ppm	17 cpm	17 cpm	17 cpm	26 ppm	26 cpm	26 cpm	26 cpm
B5R (7.25" x 10.5"R)		12 ppm	12 ppm	12 ppm	12 ppm	19 ppm	19 ppm	19 ppm	19 ppm
A5 (8.5" x 5.5")		17 ppm	17 cpm	17 cpm	17 cpm	26 ppm	26 cpm	26 cpm	26 cpm
A6R (Postcard)*3		6 ppm	6 cpm	6 cpm	6 cpm	6 ppm	6 cpm	6 cpm	6 cpm
A6R (Normal paper)		13 ppm	13 cpm	13 cpm	13 cpm	13 ppm	13 ppm	13 ppm	13 ppm
OHP (Speed *1)		17 ppm	17 cpm	17 cpm	17 cpm	17 ppm	17 cpm	17 cpm	17 cpm
OHP (Image quality)		13 ppm	13 cpm	13 cpm	13 cpm	13 ppm	13 cpm	13 cpm	13 cpm
Heavy paper 1 *1 *2 (B5, A4, 8.5" x 11", A5, 5.5" x 5.5")		13 ppm	13 cpm	13 cpm	13 cpm	13 ppm	13 cpm	13 cpm	13 cpm
Heavy paper 1 *1 *2 (Envelope*4 and other sizes than the above)		6 ppm	6 cpm	6 cpm	6 cpm	6 ppm	6 cpm	6 cpm	6 cpm
Heavy paper 2 *1 (B5, A4, 8.5" x 11", A5, 8.5" x 5.5")		13 ppm	13 cpm	13 cpm	13 cpm	13 ppm	13 cpm	13 cpm	13 cpm
Heavy paper 2 *1 *2 (Envelope *1 *2 and other sizes than the above)		6 ppm	6 cpm	6 cpm	6 cpm	6 ppm	6 cpm	6 cpm	6 cpm
Envelope *1 (All kinds)		5 ppm	5 ppm	5 ppm	5 ppm	6 ppm	6 cpm	6 cpm	6 cpm
Special size		5 ppm	5 ppm	5 ppm	5 ppm	7 ppm	7 cpm	7 cpm	7 cpm

ppm (print per minute): print per minute when printing two or more pages of a single document.

cpm (copy per minute): copy per minute when scan multi copying of a single document

When offset function OFF

*1: Max. speed *2: Heavy paper 1: 106-200g/m^2 (28+lbs - 54lbs), heavy paper 2: 201-300g/m^2 (54+lbs - 80lbs)

*3: Selectable between B/W 13cpm (ppm) and color 13cpm (ppm). With SIM

*4: Kind of envelopes: COM10, Monarch, DL, C5

(2) First copy time

Platen/ RSPF	Paper exit position	Rotation copy	B/W	Color
Platen	Side face up	Not rotates. No reversion No APS When in the group mode	Within 8.0 sec (A4/LT)	Within 11.7 sec (A4/LT)
		Rotation copy No reversion Document: A4R Paper: A4	Within 12.0 sec (A4/LT)	Within 17.0 sec (A4/LT)
	Machine face down	Not rotates. No APS When in the group mode	Within 10.2 sec (A4/LT)	Within 15.0 sec (A4/LT)
		Rotation copy Document: A4R Paper: A4	Within 14.5 sec (A4/LT)	Within 19.5 sec (A4/LT)
RSPF	Side face up	No reversion No APS When in the group mode	Within 10.5 sec (A4/LT)	Within 14.0 sec (A4/LT)
		Rotation copy No reversion Document: A4R Paper: A4	Within 14.0 sec (A4/LT)	Within 19.0 sec (A4/LT)
	Machine face down	Not rotates. No APS When in the group mode	Within 13.0 sec (A4/LT)	Within 17.0 sec (A4/LT)
		Rotation copy Document: A4R Paper: A4	Within 16.0 sec (A4/LT)	Within 22.0 sec (A4/LT)

Condition: The transfer belt positions are B/W positions.

(3) Job speed

Mode		B/W (1bit)		Color (4bit)	Conditions by mode
		600 x 300dpi	600 x 600dpi		
Copy method	10 x 1 set S to S	26 cpm	21 cpm	8 cpm	• The RSPF/Duplex bypass inverter unit are installed. • The first copy is not included.
	10 x 5 sets S to D	20 cpm		14 cpm	• The RSPF/2-stage paper feed desk with duplex/ duplex bypass inverter unit are installed. • The first copy is not included. • Memory is 512MB.
	5 x 5 sets D to D	20 cpm		14 cpm	

Copy conditions:

Document size A4 (8.5" x 11"), when discharging paper to the side in the group mode. The transfer belt position is B/W position.

(4) Continuous copy

Multi max. number	999 sheets (Adjustable with key operator pogram)

(5) Resolution

Scan resolution	600 x 600 dpi
Writing resolution	600 x 600 dpi

(6) Copy document

Document size	Max. A3
Document kind	Sheet/book document

(7) Copy magnification ratio

Copy magnification ratio	AB series: 25%, 50%, 64%, 70%, 81%, 86%, 100%, 115%, 122%, 141%, 200%, 400% Inch series: 25%, 50%, 64%, 77%, 95%, 100%, 121%, 129%, 200%, 400% (400% only in OC mode)
Custom magnification ratio registration	AB series/Inch series: 4 keys (2E/2R)
Zoom	50 to 200% (increment of 1% for 50 to 200%)
Independent zoom	Yes (OC: 25, 400%, 50 to 200%, RSPF: 50 to 200%, increment of 1%)

(8) Density, copy image process

Exposure mode	Display	Color (Hexadecimal)	B/W (binary)
	Auto	Text/Printed Photo Default ME3 Pre-scan: No	Text auto: AE Pre-scan: No
	Text	Text	
	Text/Printed Photo	Text/Printed Photo	
	Text /Photograph	Text/Photograph	
	Printed Photo	Printed Photo	
	Photograph	Photograph	
	Map	Map	
	Copy document	Copy document (Effective for Text, Text/Printed, Printed)	
Color enhancement	Yes (Effective for Text, Text/Printed, Text/Photograph, Printed, Photograph, Map)		
Manual steps	9 steps		
Smoothing process	No		
Toner save mode	Supported by diag setting		

(9) Copy functions

Functions	APS	Yes
	AMS	Yes
	ACS (Auto Color Selection)	No
	Paper type select	Yes
	Free size input	Document: Yes Paper: Yes
	Auto tray switching	Yes
	Rotation copy	Yes (A4/8.5 x 11/B5 paper size only)
	Rotation sort	No
	Electronic sort (E-RDH)	Yes (B/W only)
	Copy reservation	No
	Program call/registration	Yes (Max. 10 items)
	Proof copy	No
	Pre-heat	Yes (Conditions are set by the key operation.)
	Auto power shut off	Yes (Conditions are set by the key operation.)
	Department management	Yes (200 departments)
	Key operator program	Yes
	Communication support (RIC)	Yes
	Process control	Yes
	Card counter support	No
	Coin vendor support	Yes

Special functions	Binding margin	Yes
	Edge erase/Center erase	Yes
	1 set 2 copy	Yes (OC mode only)
	Cover insertion	Yes (For color, only one copy available)
	OHP insert paper	Yes (White paper insertion only)
	Insert paper insertion (Index)	No
	Centering	Yes
	Multi shot (2 in 1 / 4 in 1)	Yes (Ruled line ON/OFF allowed)
	Center binding	Yes (B/W only)
	Duplex copy direction switch	Option ∗ Requires Duplex desk, Duplex pass/ Inverter.
	Negative/Positive conversion	No
	B/W inversion	Yes (B/W only)
	Photo repeat	Yes (2/4/8/12/16/24) 10 is for visiting cards.
	RGB adjustment	Yes
	Color balance	Yes
	Color Gamma adjustment	Yes (OC only)
	Brightness adjustment	Yes
	Contrast adjustment	No
	Sharpness adjustment	Yes
	Mirror image	Yes
	Single color	6 colors (R, G, B, C, M, Y)
	Enlargement continuous copy	Yes (OC only)
	Background erase	Yes
	A3 wide copy	Yes (OC only)
	Auto color calibration	Yes
	Auto registration	Yes

(10) Memory limitation matrix

Copier specifications		ICU PWB	Combination		Standard	Expansion 1	Expansion 2
			Standard (Slot 1)		256MB	256MB	256MB
			Expansion memory (Slot 2)		No expansion	128MB	256MB
			Total memory capacity		256MB	384MB	512MB
		Mode	Electronic sort	Document size	Upper limit of document scan quantity (number of surfaces)		
Copy	Single	Color	No	to A4 (8.5" x 11")	SOPM	SOPM	SOPM
				B4, A3 (8.5" x 14", 11" x 17")	SOPM	SOPM	SOPM
				A3W (12" x 18")	SOPM	SOPM	SOPM
		B/W	Yes	to A4 (8.5" x 11")	400 surfaces	400 surfaces	680 surfaces
				B4, A3 (8.5" x 14", 11" x 17")	200 surfaces	200 surfaces	340 surfaces
				A3W (12" x 18")	165 surfaces	165 surfaces	280 surfaces
	Duplex	Color	No	to A4 (8.5" x 11")	SOPM	SOPM	SOPM
				B4, A3 (8.5" x 14", 11" x 17")	No	SOPM	SOPM
				A3W (12" x 18")	No paper pass allowed		
		B/W	Yes	to A4 (8.5" x 11")	400 surfaces	400 surfaces	680 surfaces
				B4, A3 (8.5" x 14", 11" x 17")	200 surfaces	200 surfaces	340 surfaces
				A3W (12" x 18")	No paper pass allowed		

B/W (Electronic sort): Equivalent to "TEST SHEET B."

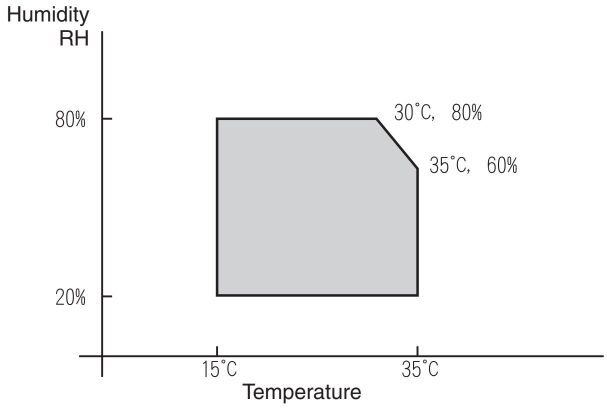
SOPM: Scan Once Print (Copy) Many

B. Reversing single pass feeder

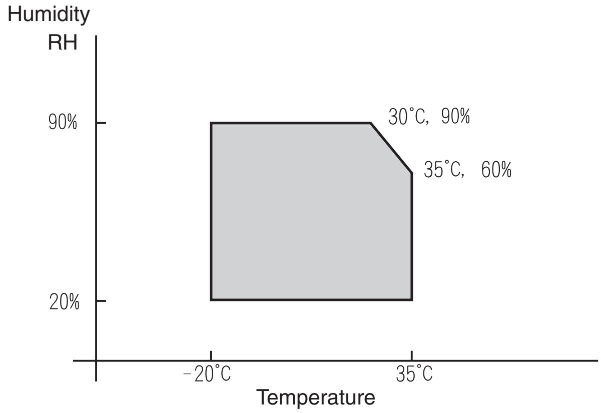
Type	RSPF (Reversing single pass feeder)	
Document set direction	Face up reference	
Document reference position	Center reference	
Document paper feed reference	Upper take-up reference (1 to N paper feed reference)	
Document transport system	Sheet through system	
Kinds of out-of-specification documents	OHP, perforated documents, photograph, catalogue	
Document load capacity	40 sheets (Thickness 4mm or less. For 90g/m^2, 30 sheets can be set.)	
Document detection Yes/No	Yes (Size detection on the document tray, traveling detection)	
Detection size	AB-1	A3, B4, A4, A4R, B5, B5R, A5
	AB-2	A3, 216 x 330, A4, A4R, B5, B5R, A5
	Inch-1	11" x 17", 8.5" x 14", 8.5" x 11", 8.5" x 11"R, 8.5" x 5.5"
	Inch-2	11" x 17", 8.5" x 13", 8.5" x 11", 8.5" x 11"R, 8.5" x 5.5"
	Selection between 8.5" x 13" and 8.5" x 14" can be made by the user setting.	
Document inversion	Yes (However, 8.5" x 5.5" is inhibited.)	
Document weight	56 to 90g/m^2 (15 to 24 lbs.)	
Stream feeding mode	Yes (Standby 5 sec)	
Mixed-load documents	Mixed-load paper feed: Inhibited Random paper feed: Inhibited	
Document tray guide display	A3/A4, 11, B4/B5, 8.5, A4R/A5, B5R, A5R, 5.5	
Power supply	From main unit (26.4 W)	
Dimensions	(W x D x H) 583 x 435 x 133 mm	
Weight	Approx. 5.4 kg	

3. Environment conditions

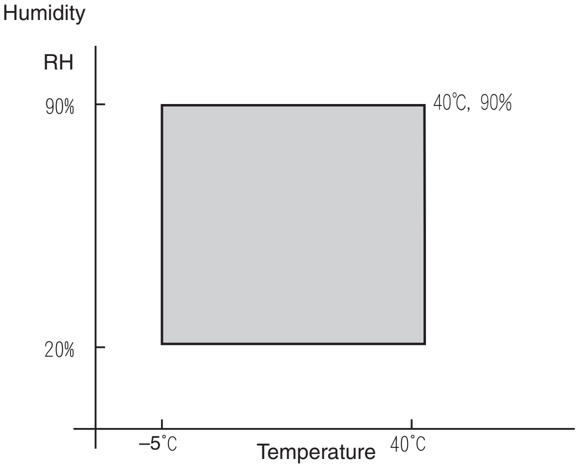
A. Operating environment conditions



B. Transit environment conditions



C. Supply storage environment conditions



D. Standard temperature and humidity

Temperature	20 to 25°C (68 to 77°F)
Humidity	65 ±5%

[4] CONSUMABLE PARTS

1. Supply system table

A. European subsidiary/Australia/New Zealand

No.	Item	Model Name	Content	Life	Commonality with other host machines	Remarks
1	Toner Cartridge (Cyan)	AR-C26TCE	Toner Cartridge (Cyan) with IC Chip x 1 (Toner ; Net 315g)	11k	Common (AR-C260M/P)	* *Life : A4 size at Area Coverage 5%
2	Toner Cartridge (Magenta)	AR-C26TME	Toner Cartridge (Magenta) with IC Chip x 1 (Toner ; Net 315g)	11k	Common (AR-C260M/P)	* *Life : A4 size at Area Coverage 5%
3	Toner Cartridge (Yellow)	AR-C26TYE	Toner Cartridge (Yellow) with IC Chip x 1 (Toner ; Net 315g)	11k	Common (AR-C260M/P)	* *Life : A4 size at Area Coverage 5%
4	Toner Cartridge (Black)	AR-C26TBN	Toner Cartridge (Black) with IC Chip x 1 (Toner ; Net 525g)	16.7k	for this model only	* *Life : A4 size at Area Coverage 6%
5	Drum Cartridge	AR-C26DUN	Drum Cartridge x 1 (Drum/Unit Parts included) Color identification seal (C/M/Y/Bk) x 1 each	50k	for this model only	
6	Drum	AR-C26DMN	OPC Drum x 1	50k	for this model only	
7	Main Charger Kit	AR-C26MKE	Charger Unit x 1 Cleaning Blade x 1 Toner Receiving Seal x 1	50k	Common (AR-C260M/P)	

2. Consumables (kit, unit)

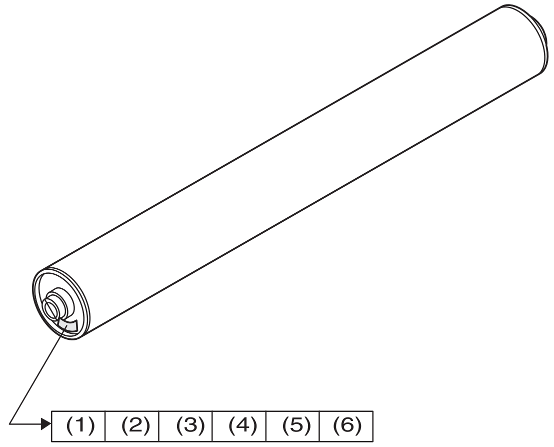
	Part name	Model name	Content	Life
1	Upper heat roller kit	AR-C26UH	Upper heat roller x 1 Heat roller 60T gear x 1 Upper heat roller bearing x 2 Thermistor x 1 Upper heat roller stopper x 2	100K *1
2	Lower heat roller kit	AR-C26LH	Lower heat roller x 1 Lower heat roller bearing x 2 Thermistor x 1 Lower heat roller stopper x 2 Fusing separation pawl lower x 2	100K *1
3	Transfer belt kit	AR-C26TT	Transfer belt x 1	100K *1
4	Transfer roller kit	AR-C26TX	Transfer roller x 4	100K
5	Transfer waste toner tank unit	AR-C26HB	Transfer waste toner tank unit x 1	100K
6	Filter kit	AR-C26FL	Ozone filter A x 1 Ozone filter B x 1	50K
7	Saddle staple cartridge	AR-SC2	—	
5	Fusing unit	AR-C26FU (230V heater lamp) AR-C26FU1 (120V heater lamp) AR-C26FU2 (100V heater lamp)	Fusing unit for servicing (including upper/lower heater lamps)	*1
6	Transfer belt unit	AR-C26TU	Transfer unit for servicing	100K *1

*1: Replace at 100K or within 2 years

3. Photoconductor, developer, toner

A. Lot number identification and the term of validity

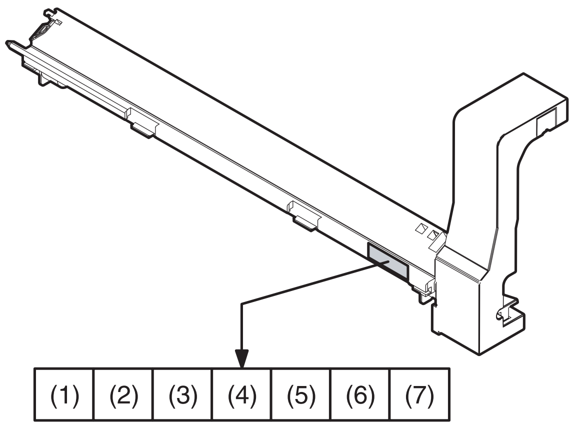
(1) Photoconductor



(1)	Alphabet Indicates the model support code.
(2)	Figure Indicates the end digit of the packing year.
(3)	Figure or X, Y, Z Indicates the packing month. (X= October, Y= November, Z= December)
(4) (5)	Figure Indicates the packing day.
(6)	Alphabet Indicates the production division.

The term of validity: 36 months from the production day (month).

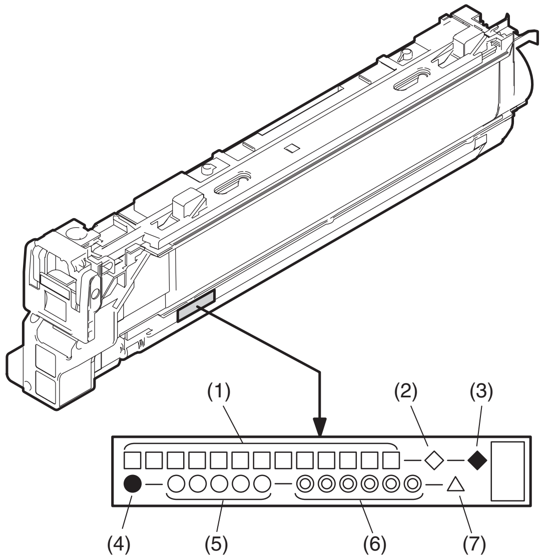
(2) Photoconductor cartridge



(1)	Figure Version No.
(2)	Figure The end digit of the year.
(3)	Alphabet Production code (B for SOCC)
(4)	Alphabet Destination code
(5) (6)	Figure Production day
(7)	Figure or X, Y, Z Indicates the production month. (X= October, Y= November, Z= December)

The term of validity: 24 months from the production day (month).

(3) Toner cartridge



(1)	Alphabet or figure Unit code
(2)	Alphabet Destination code
(3)	Alphabet Skating
(4)	Alphabet Production site code
(5)	Figure Serial number (5 digits)
(6)	Figure Production year, month, day (6 digits)
(7)	Alphabet Version No. (A ~ sequentially revised)

The term of validity: 24 months from the production day (month).

[5] UNPACKING AND INSTALLATION

1. Installing (use) conditions

Before installing the machine, check that the following installing (use) conditions are satisfied.

If the installing (use) conditions are not satisfied, the machine may not display full performances, resulting in troubles. It may also cause safety problems. Therefore, be sure to arrange the installing (use) conditions before setting up the machine.

No.	Content
1	Bringing space
2	Installing space
3	Power source (Capacity, fluctuation, safety)
4	Floor strength
5	Direct rays of the sun, dust, temperature, humidity, gases, chemicals

A. Bringing space

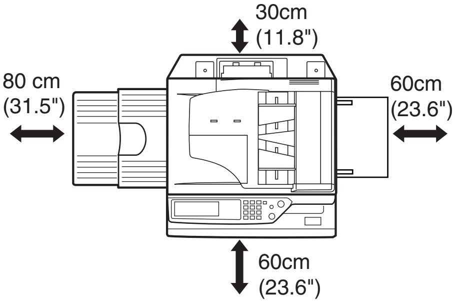
For installation of a large size machine, be sure to check that the door size is great enough before bringing in.

B. Installing space

The following space must be provided around the machine in order to assure machine performances and proper operations.

If any option is installed, provide the additional space for installing it.

Especially the space at the rear of the machine must be provided sufficiently. If not, the machine cannot exhibit functions against heat and dust, causing some troubles.



C. Power source
(Capacity, voltage, frequency, safety, plug)

If the power specifications are not satisfied, the machine cannot exhibit full performances and may cause safety trouble.

Strictly observe the following specifications.

(1) Power capacity

Check that the following power capacity is satisfied. If not, additionally provide a power source.

Current capacity

Japan: 20A or more

100V: 15A or more

200V: 10A or more

(2) Power voltage

Measure the voltage during copying to check that the voltage is in the range of the specified voltage ±10%.

If the voltage is outside the specified range, use thicker lead wires to reduce impedance.

(An electrical work is required.)

Use of a step-up transformer is also available. In this case, the capacity must be great enough for the max. power consumption of the machine.

(3) Power frequency, waveform

The frequency must be within the range of the specified frequency ±2%. If power waveform is deformed, a trouble may occur.

(4) Safety

Be sure to properly ground the machine.

(5) Power plug

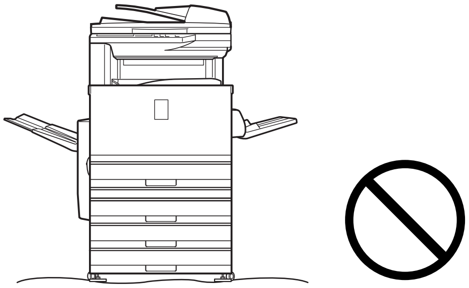
Check the form of the power plug. If the shape does not match, do not use it.

D. Floor strength and level

This machine is considerably heavy and becomes heavier with an option installed.

The floor must be strong enough for assuring safety.

If not, color shift or image distortion may occur.

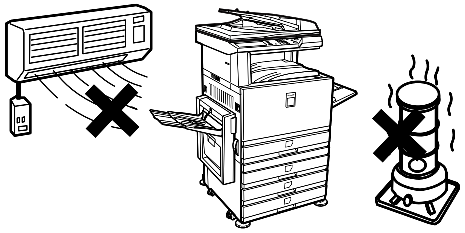


E. Direct rays of the sun, dust, temperature, humidity, gasses, chemicals, vibration

(1) Temperature and humidity

This machine is designed to perform properly under the specified temperature and humidity. If the temperature and humidity exceeds the specified range, the machine may not operate properly and or cause equipment failure.

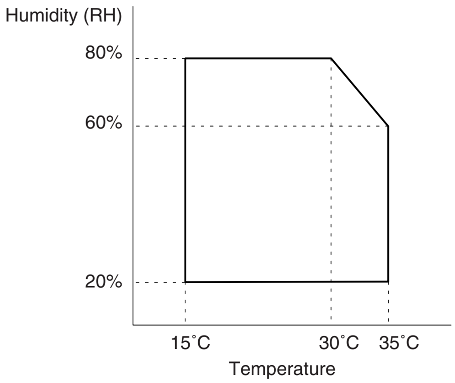
Especially when the humidity is too high, paper absorbs humidity to cause a paper jam or dirty copy.



(Do not install the machine near a stove, a humidifier, or an air conditioner.)

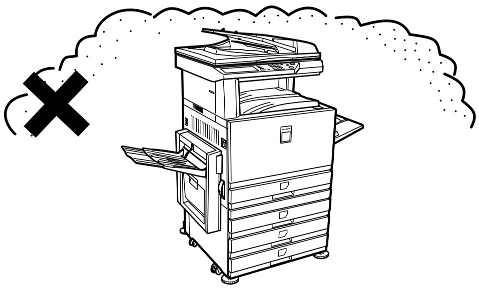
Do not install the machine near a heater, a cooler, or a humidifier.

Dew may be formed inside the machine to cause a trouble. Use enough care for ventilation.



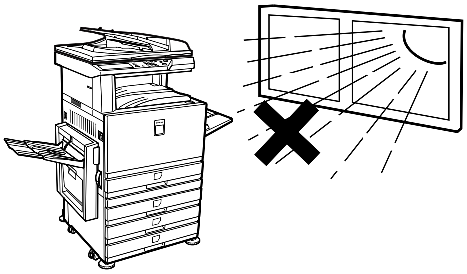
(2) Dust

If dust enters the machine, it may cause dirty copy and a paper jam, resulting in a shortened lifetime.



(3) Direct rays of the sun

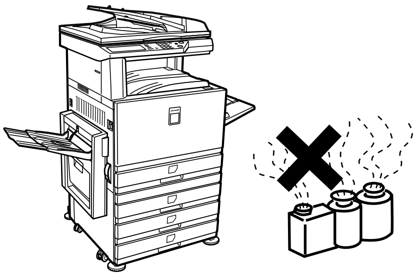
If the machine is installed under the rays of the sun, the exterior of the machine may be discolored and abnormal copies may be produced.



(4) Gases and chemicals

Do not install the machine at a place where there are gases and chemicals. Especially be careful to avoid installation near a diazo-type copier, which produces ammonium gas.

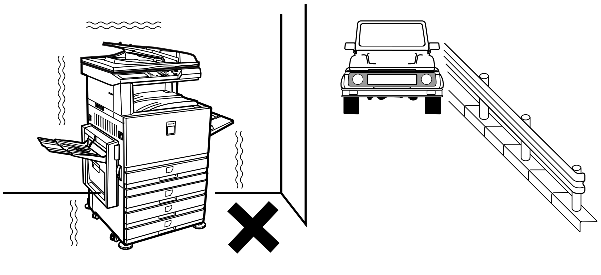
Copy quality may be adversely affected and a trouble may be caused.



(5) Vibration

Avoid installation near a machine which produces vibrations.

If vibrations are applied to the copier machine, copy images may be deflected and a trouble may be caused.



2. Transit and delivery

No.	Content	Method
1	Implements, facility, and man power	Use a forklift. (If no forklift is available, manpower of four persons is required.)
2	Delivery	Transit must be made in packed condition.

A. Implements, facility, and manpower

It is recommendable to use a forklift for bringing in the machine for safety.

If no forklift is available, man-power of four persons is required. The machine is considerably heavy, and requires safety precautions for delivery and installation.

Transit of the machine must be made in packed condition to the installing place.

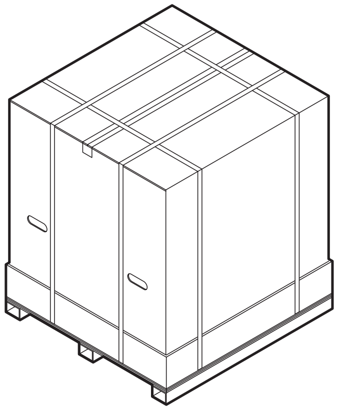
B. Delivery

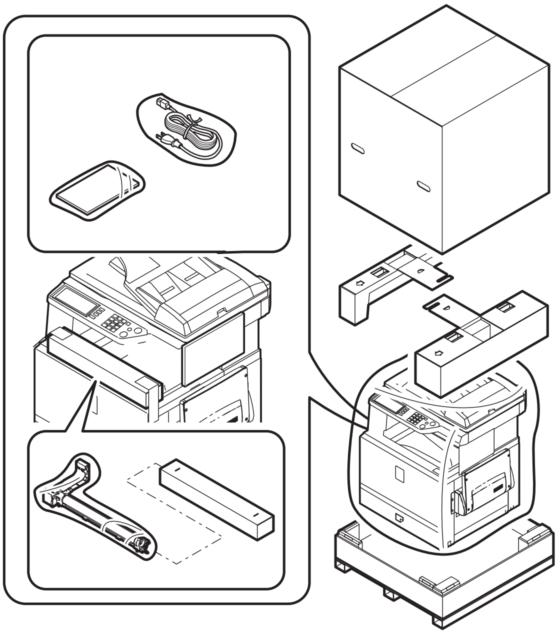
Remove the packing materials prior to installation in the ofice environment.

3. Unpacking

A. Unpacking procedure

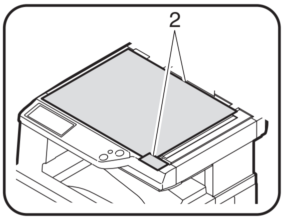
1) Remove the PP band.
2) Remove the top case.
3) Remove the internal packing pads and the items packed together with the machine.
4) Remove the machine from the package.

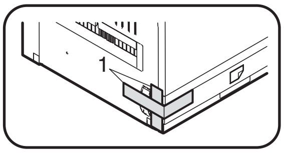


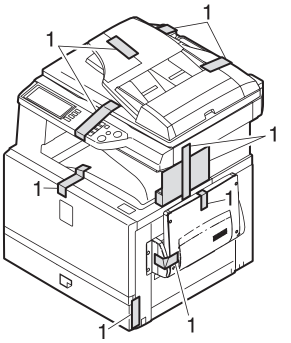


Fixing tape and protection pads removal

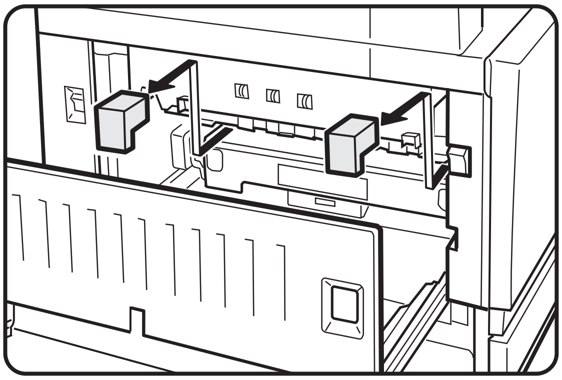
1) Remove the fixing tape and protection pads from the machine.







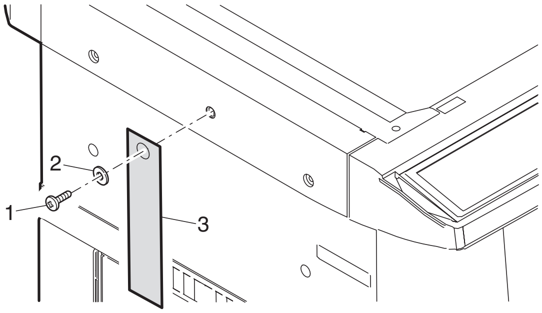
2) Open the left door, and remove the transfer fixing pads.



4. Lock release

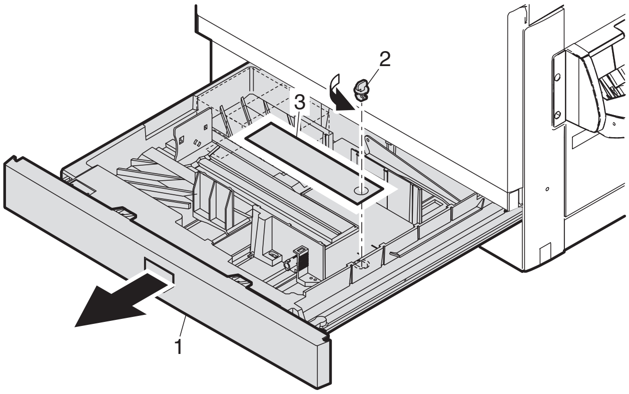
A. Scanner (2/3 mirror unit) lock release

1) Remove the scanner fixing screw, and remove the caution label.



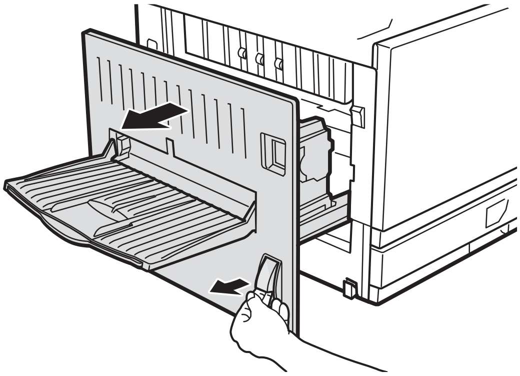
B. Main body cassette lock release

1) Pull out the main body cassette.
2) Remove the rotation plate fixing pad and remove the caution label.

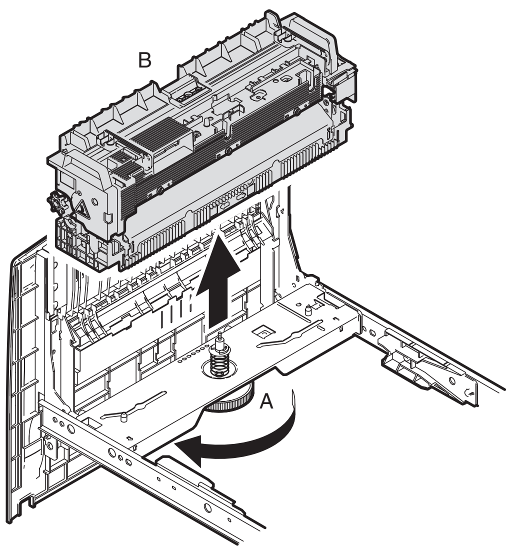


C. Transfer unit pressure release

1) Pull the knob and open the left door.

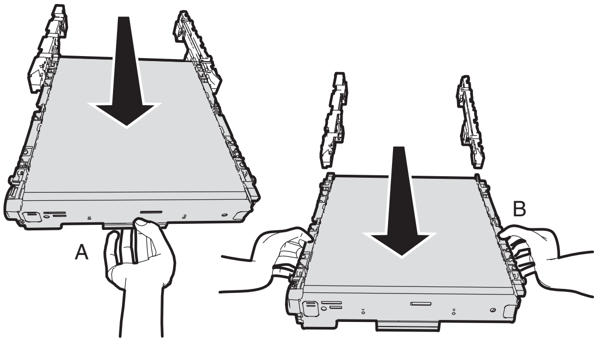


2) Loosen the roller knob (A), and remove the fusing unit (B).

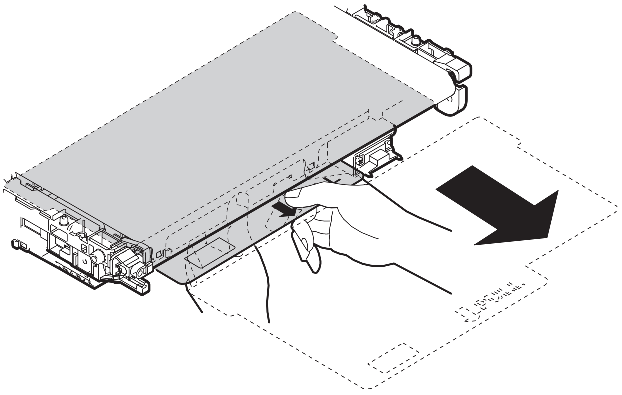


3) Hold section A of the transfer unit and pull it out so that the both sides of the transfer unit can be held.

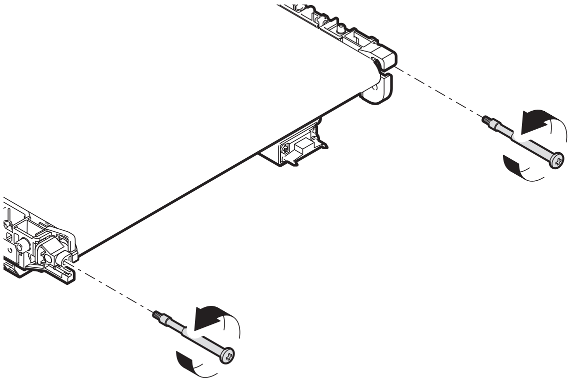
4) Hold sections B and remove the transfer unit.



5) Remove the transfer belt protect sheet.



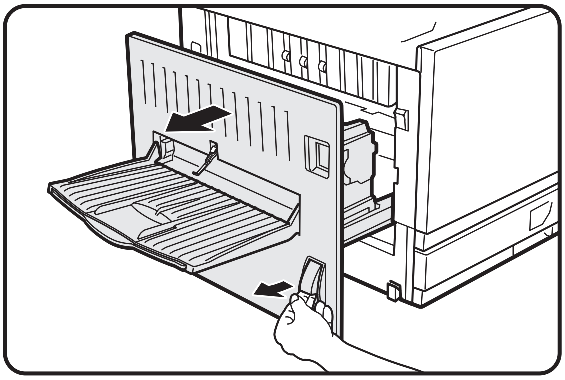
6) Remove the screw and apply a tension to the transfer belt.



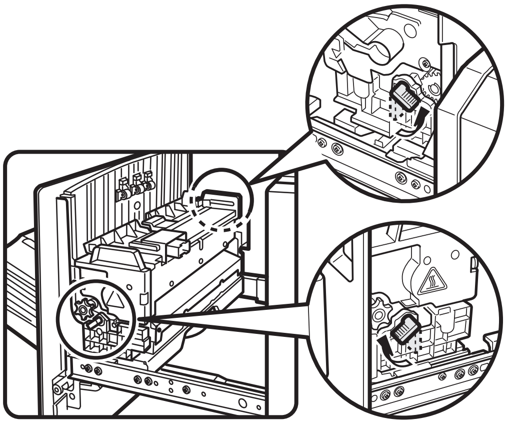
7) Install the transfer unit to the machine.

5. Fusing heat roller pressing (F/R)

1) Pull the knob and open the left door.



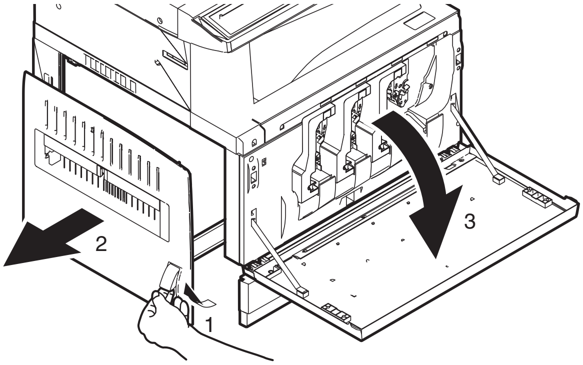
2) Turn the pressure release lever to press.



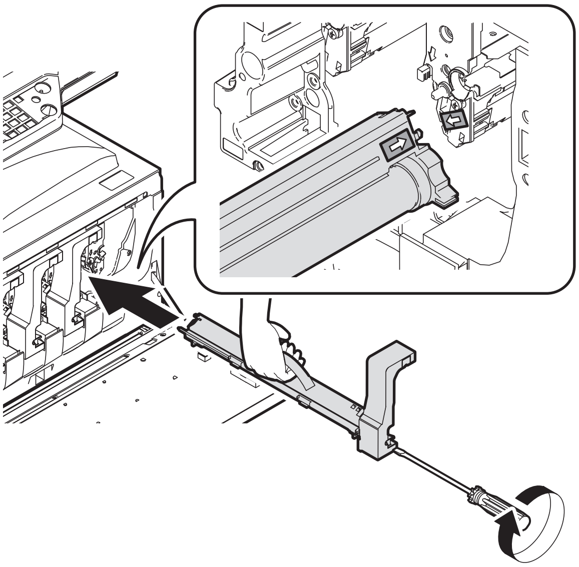
Note: If the machine is left for one month or more, the heat roller rubber may be deformed. In such a case, therefore, release the pressure.

6. Black drum cartridge insertion

1) Pull the knob and open the left door.
2) Open the front cover.

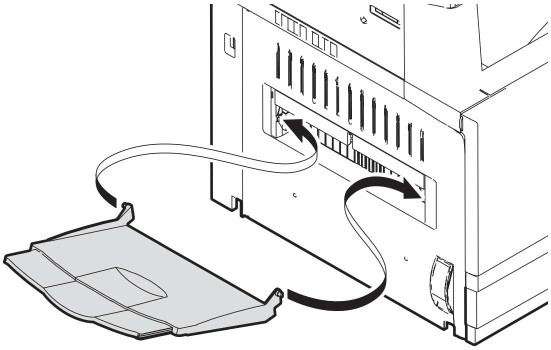


3) Insert the black drum cartridge, and fix it with a screw.



7. Paper exit tray installation (Optional)

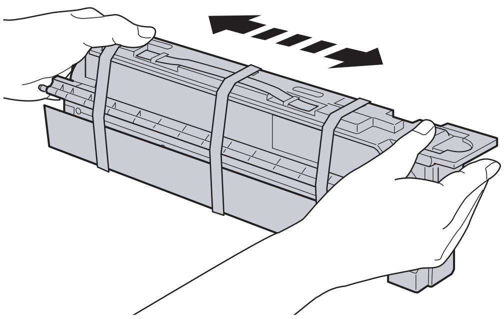
1) Install the paper exit tray to the left door.



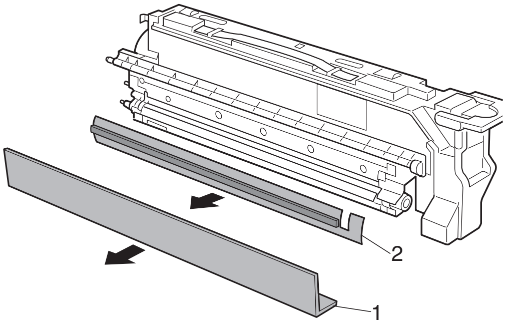
8. Toner cartridges installation

* The life of each toner cartridge packed together with the machine is as follows:
Black toner CA: 8.3K (6%) equivalent
Color toner CA: 5.5K (5%) equivalent

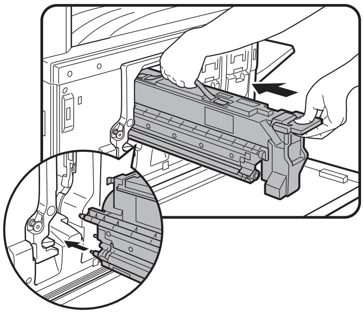
1) Shake the toner cartridge horizontally several times.



2) Remove the tape, and remove the protection pad.

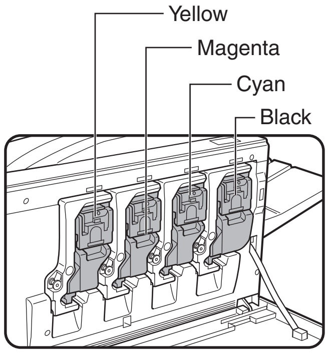


3) Open the front cover.
4) Insert the toner cartridge.
   - ∗ As shown below, fit the cartridge with the insertion port and push it in.

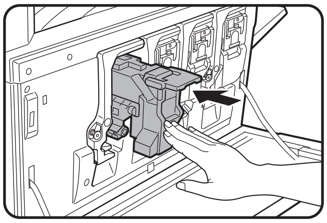


Note: Be sure to install the color cartridges to their proper positions. Avoid instillation to a different color position.

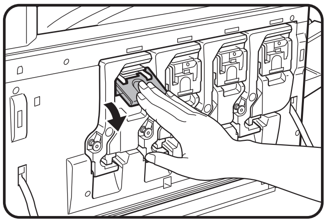
[Color toner cartridge positions]



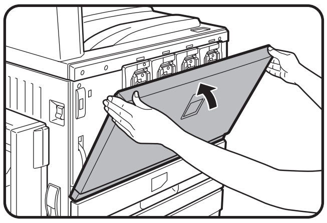
5) Insert the cartridge securely until it locks.



6) Return the cartridge lever to the original position.

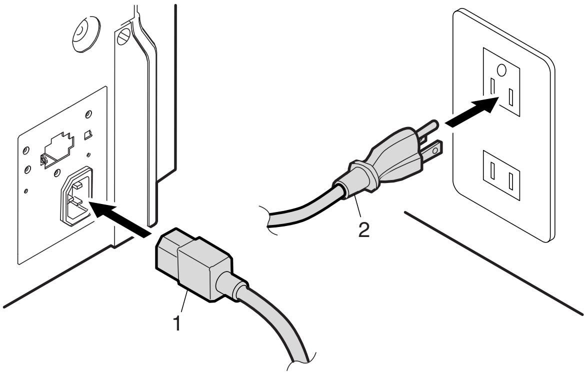


7) Close the front cover.



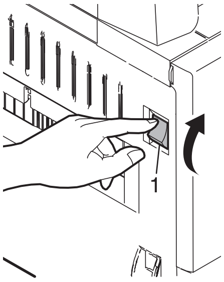
9. AC cord connection

1) Insert the AC power plug into the connector at the rear of the machine, and connect the other end to the power outlet.



10. Machine power ON

1) Turn on the power switch on the left side of the machine.



11. Specifications setup

Used to set the specifications with SIM26 according to the customer's request.

SIM No		Content
26	6	Used to set the destination.

To customize the following items after completion of the destination setup, change the set values.

SIM No		Content
26	2	Used to set the large capacity paper feed tray paper size.
		Used to set the detection paper size and display when using 8.5 x 13 size paper and document.
		Used to set the paper kind and the display form in the manual paper feed mode.
	3	Used to set the auditor specification mode.
	5	Used to set the count mode of the total counter and the maintenance counter.
	18	Used to set YES/NO of the toner save mode (Only in UK and Japan versions) For other destination versions, this setup is made by the user program.
	52	Used to set YES/NO of counting when non-print paper is passed through each counter.
	53	Used to set YES/NO of user calibration permission.
	65	Used to set the limit number of sheets for stapling.

On completion of the installation of the AR-F13 finisher, please change the default output tray of the machine to the top tray of the finisher.

12. Image quality check

Check the following items related to image quality. For details of the adjustment and checking procedures, refer to the chapter of adjustments.

1) Image focus, image skew (Refer to ADJ 3.)
2) Image registration (Refer to ADJ 4.)
3) Image loss, void area (Refer to ADJ 10.)
4) Copy color balance, density (Refer to ADJ 11.)

Check that the above items are normal. If not, make the adjustment.

13. Function and operation check

Check that the following operations are normal.

Check item		Installation	
Key input operation (Operation panel)			
Display (Operation panel)			
Paper feed operation	Manual paper feed		
	Machine paper tray		
	Desk unit paper feed tray	When the desk unit is installed.	
Paper size detection operation			
Document size detection operation	Document table mode		
	RSPF mode		
RSPF operation/ Duplex copy operation	S-S mode		
	D-S mode		
	S-D mode	When the desk unit with the duplex unit is installed.	
	D-D mode	When the desk unit with the duplex unit is installed.	
Bookbinding operation		When the finisher is installed.	
Stapling operation		When the finisher is installed.	
Grouping operation		When the finisher is installed.	When the sorter is installed.
Sorting operation		When the finisher is installed.	When the sorter is installed.

14. Setup and adjustment data recording

Print the various setup data and the adjustment data (list) with SIM22-6 and keep the data.

In case of a memory trouble, if the data are not kept, all the adjustments must be made again.

If the data are kept, the setup values and the adjustment values can be entered without adjustments, shortening the servicing time.

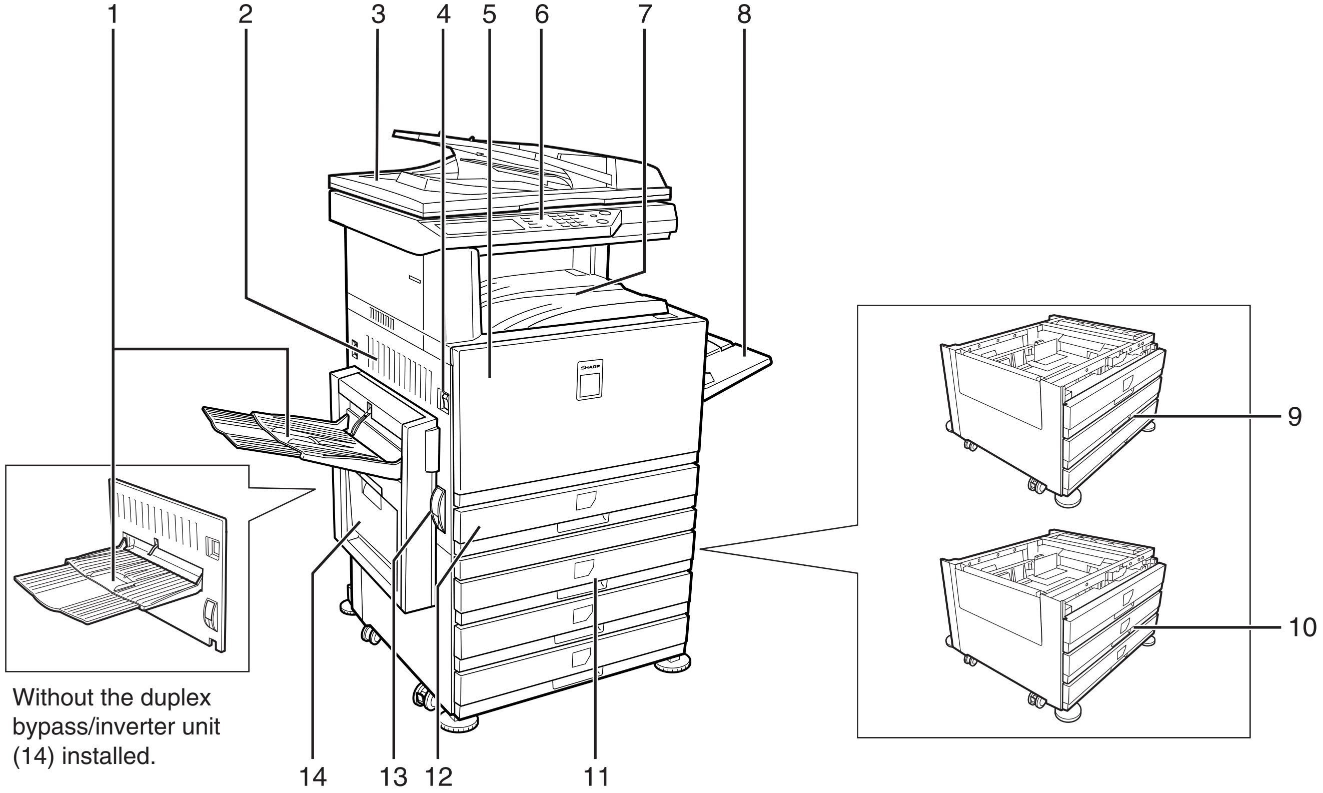
15. Necessary works before moving the machine

1) If the following options are installed, remove all of them from the machine.
   - Sorter
   - Finisher
   - Reverse unit
   - RSPF unit
   - Desk unit
2) Remove the following consumable parts from the machine.
   - Paper
   - Toner cartridge
   - Photoconductor cartridge
3) Lock the following sections.
   - Scanner (Optical section)
   - Paper cassette lift plate

[6] EXTERNAL VIEW AND INTERNAL STRUCTURE

1. Name and function of each section

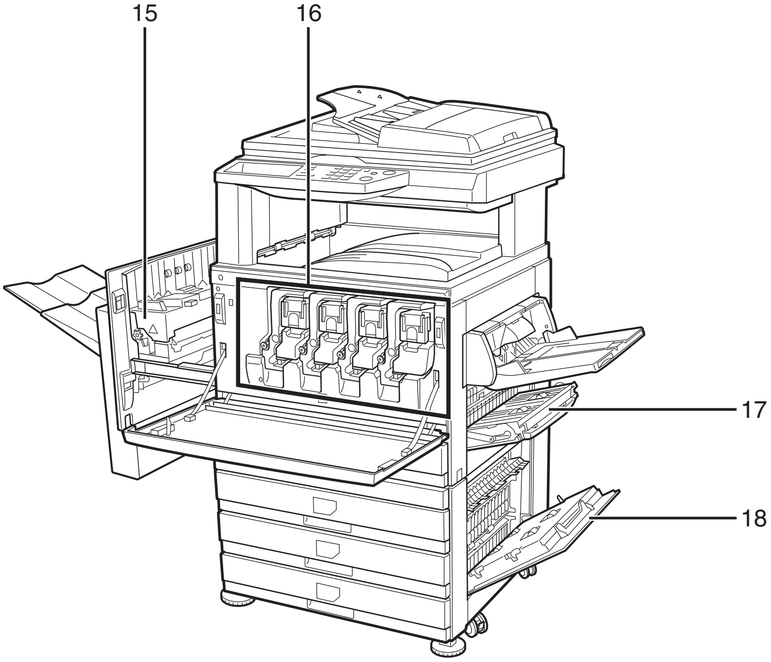
A. External view



Without the duplex bypass/inverter unit (14) installed.

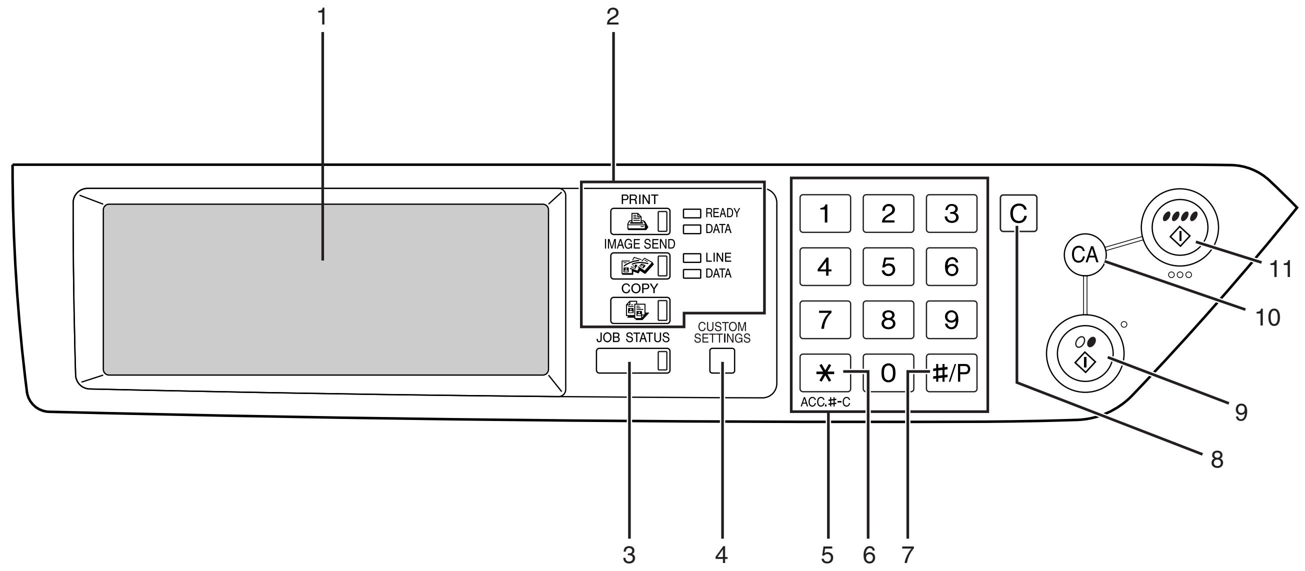
No.	Parts		Note
	Name	Function	
1	Left tray	Finished sheets are deposited here.	
2	Left side cover	Open this cover when a paper misfeed occurs in the fusing unit or the transfer unit.	
3	Reversing single pass feeder	This automatically feeds originals to be scanned. The feeder can turn the original over and scan the back side as well as the front side for support of two-sided originals.	
4	Power switch	Press to turn power on and off.	
5	Front cover	Open to replace toner cartridge.	
6	Operation panel	Performs various functions with the operation keys and the touch panel.	
7	Centre tray	Finished sheets are deposited here.	
8	Bypass tray	Special papers (including transparency film) and copy paper can be fed from the bypass tray.	
9	Stand/1 x 500 sheet paper drawer	This stand has one paper tray. It can hold approximately 500 sheets of the recommended paper for color (80 g/m^2 or 21 lbs.), or approximately 550 sheets of SHARP standard paper (64 g/m^2 or 21 lbs.).	Option (AR-D17N)
10	Stand/3 x 500 sheet paper drawer	This stand has three paper trays. Each tray can hold approximately 500 sheets of the recommended paper for color (80 g/m^2 or 21 lbs.), or approximately 550 sheets of SHARP standard paper (64 g/m^2 or 21 lbs.).	Option (AR-D18N)
11	Duplex module/2 x 500 sheet paper drawer	This stand includes a module for automatic two-sided printing and two paper trays. The two trays can hold approximately 500 sheets of the recommended paper for color (80 g/m^2 or 21 lbs.), or approximately 550 sheets of SHARP standard paper (64 g/m^2 or 21 lbs.). To perform two-sided printing, a duplex bypass/inverter unit (AR-RB1) is required.	Option (AR-D19N)
12	Paper tray	Each tray can hold approximately 500 sheets of the recommended paper for color (80 g/m^2 or 21 lbs.), or approximately 550 sheets of SHARP standard paper (64 g/m^2 or 21 lbs.).	
13	Left side cover release	Push this release up to open the left side cover.	
14	Duplex bypass/inverter unit	This module is required to automatically turn paper over within the machine for automatic two-sided printing.	Option (AR-RB1)

B. Internal structure



No.	Parts		Note
	Name	Function	
15	Fusing unit	Toner images are fused here.	The fusing unit is hot. Take care in removing misfed paper.
16	Toner cartridge	The toner cartridge must be replaced when indicated on the operation panel.	
17	Right side cover	Open when a misfeed has occurred in the paper feed area.	
18	Right cover of paper drawer	Open this cover to remove paper misfed in the paper drawer.	

C. Operation panel



No.	Parts	
	Name	Function
1	Touch panel	The machine status, messages and touch keys are displayed on the panel. When using the touch panel, first change the display to the mode that you wish to use: printer mode, copy mode, network scanner mode*1 , or fax mode*2 .
2	Mode select keys and indicators	Use to change modes and the corresponding display on the touch panel. **[PRINT] key/READY indicator/DATA indicator** Press to enter the printer mode. **READY indicator** Print data can be received when this indicator is lit. **DATA indicator** Lights up or blinks when print data is being received. Also lights up or blinks when printing is being performed. **[IMAGE SEND] key/LINE indicator/DATA indicator** Press this key to switch the display between network scanner mode*1 and fax mode*2. **[COPY] key** Press to select the copy mode.
3	[JOB STATUS] key	Press to display the current job status.
4	[CUSTOM SETTINGS] key	Use to adjust the contrast of the touch panel or to set key operator programs.
5	Numeric keys	Use to enter number values for various settings.
6	[*] key ([ACC.#-C] key)	This is used when the copy, network scan*1, and fax*2 functions are used.
7	[#/P] key	This is used as a program key when using the copy function, and to dial when using the fax function*2.
8	[C] key	This key is used in copy mode, network scanner mode*1, and fax mode*2.
9	[BLACK COPY START] key	This is used to make black and white copies and to scan a black and white original when the network scan function is used. This is also used to scan an original to be faxed using the fax function*2.
10	[CA] key	This key is used in copy mode, network scanner mode*1, and fax mode*2.
11	[COLOR COPY START] key	This is used to make full-color or single-color copies and to scan a color original when the network scanner function is used.

*1: When the network scanner option is installed.

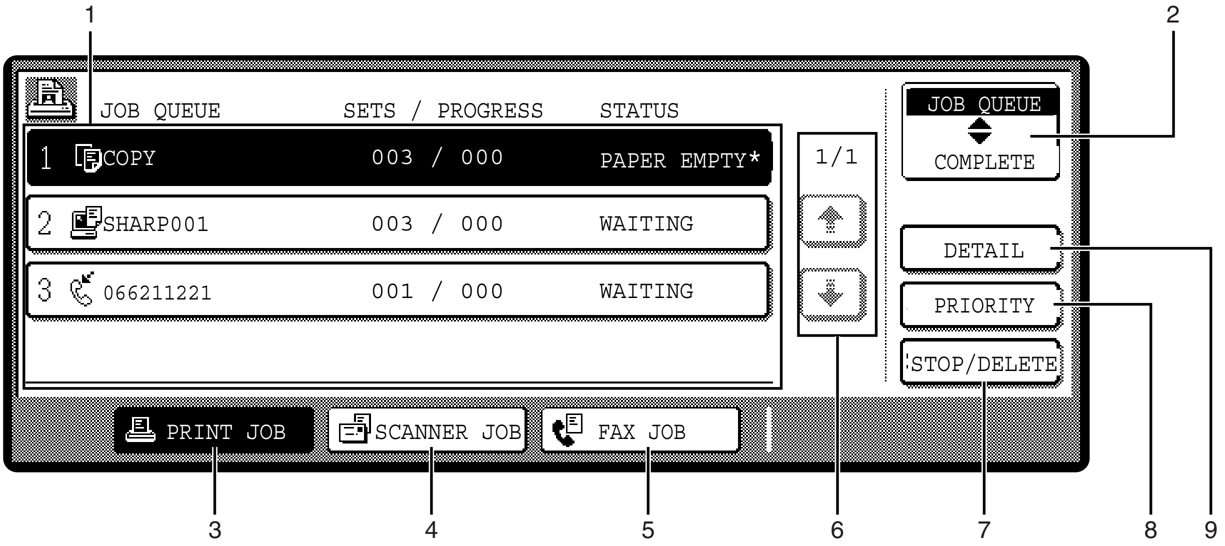
*2: When the fax option is installed.

D. Job status screen (common to print, copy, network scan and fax)

This screen is displayed when the [JOB STATUS] key on the operation panel is pressed.

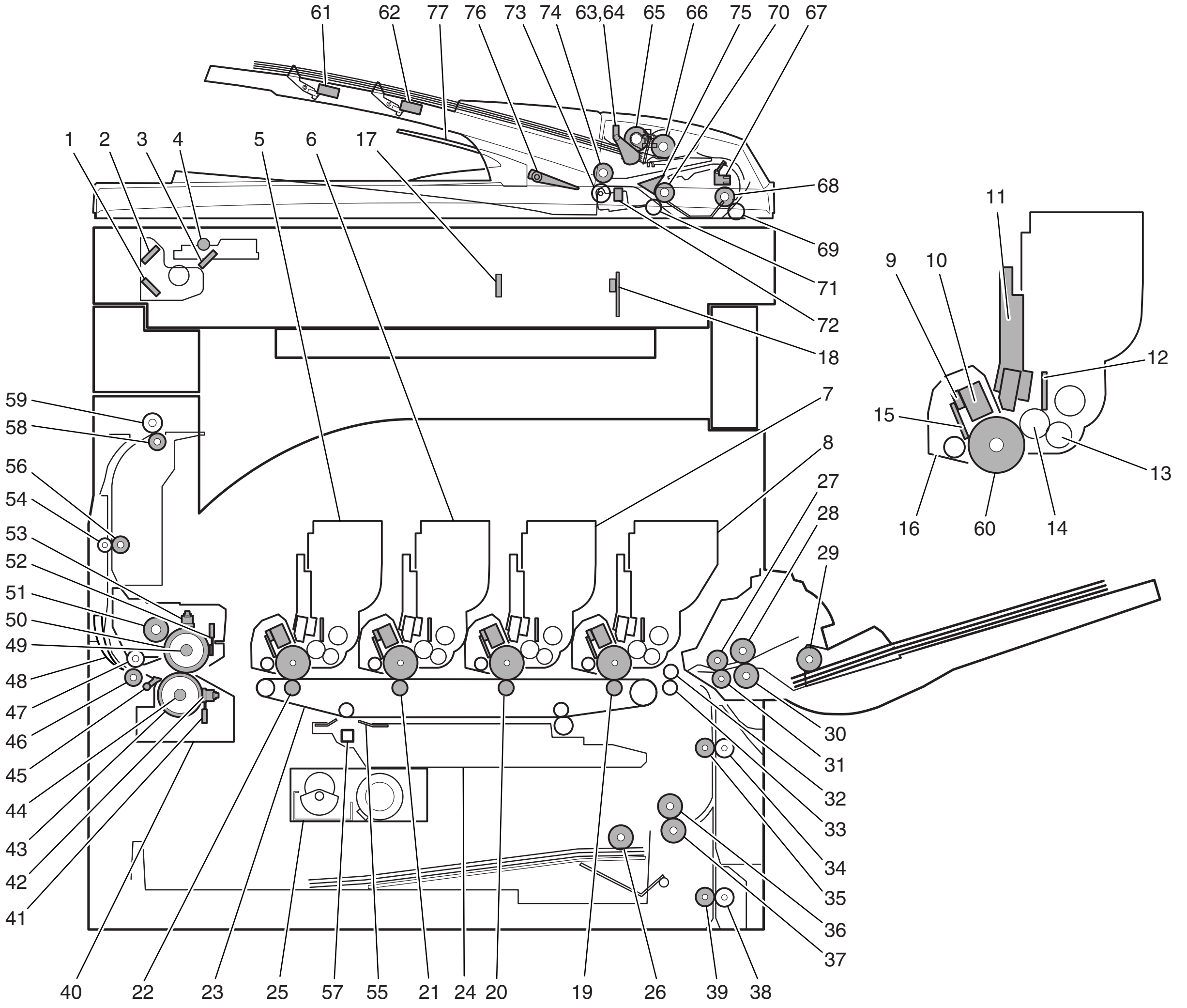
A job list showing the current job at the top of the job queue or a list showing completed jobs can be displayed.

The contents of jobs can be viewed or jobs can be deleted from the queue. (The screen below is an example and differs from actual screens.)



No.	Parts	
	Name	Function
1	Job list	This shows the current job and the jobs waiting to be run. The icons to the left of the jobs in the queue show the job mode. Copy mode Printer mode Network scanner mode Fax send job Fax reception job The displayed jobs in the job list are themselves operation keys. To cancel printing or to give a job the highest print priority, touch the relevant job key to select the job and execute the desired operation using the keys described in 5 and 6. * "PAPER EMPTY" in the job status display When a job status display indicates "PAPER EMPTY", the specified paper size for the job is not loaded in any of the trays. When the [DETAIL] key appears, the key of a job in the job queue can be touched followed by the [DETAIL] key to change the paper size selection to a different paper size (only in printer mode).
2	Mode select key	This only appears in the job status screen of fax mode. The key is used to switch the job list display between "JOB QUEUE" and "COMPLETE". "JOB QUEUE": Shows stored jobs and the job in progress. "COMPLETE" : Shows finished jobs.
3	[PRINT JOB] key	Use to display the print job list for printer, copy and fax mode.
4	[SCANNER JOB] key	This displays a list of only the jobs that use the network scanner function. (Only when the network scanner function is added.)
5	[FAX JOB] key	This displays the transmission/reception status and finished jobs of fax mode when the fax option is installed.
6	Display switching keys	Use to switch the page of the displayed job list.
7	[STOP/DELETE] key	Use to cancel or delete the current job or delete the selected reserved job. Note that a fax print job cannot be cancelled or deleted.
8	[PRIORITY] key	This only appears in the job status screen of fax mode. Touch this key to give priority to a job that has been selected in the job queue.
9	[DETAIL] key	The key is only effective for computer print jobs and only appears in the job status screen of the printer mode. It is used to display detailed information of a selected print job and to change the paper size for the print job.

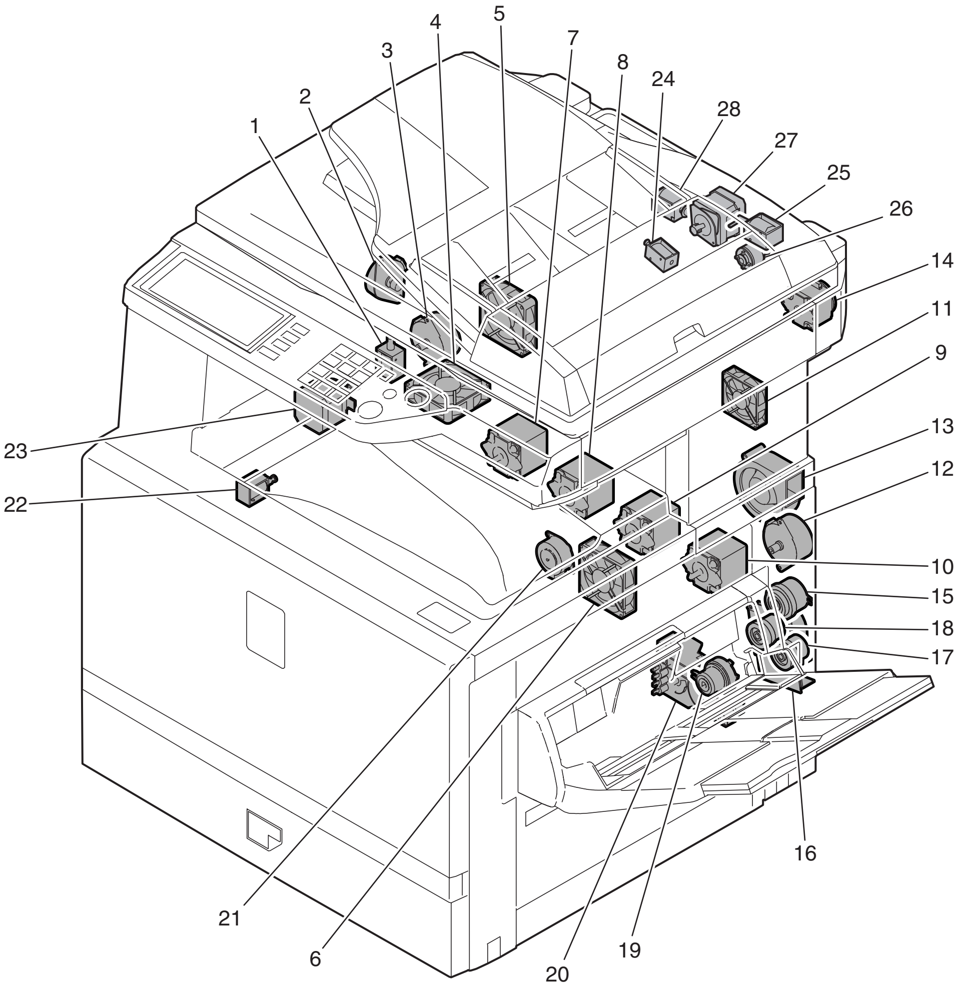
E. Cross section



<table>
<thead>
<tr><th rowspan="2">No.</th><th colspan="2">Parts</th><th rowspan="2">Note</th></tr>
<tr><th>Name</th><th>Function</th></tr>
</thead>
<tbody>
<tr><td>1</td><td>No. 3 mirror</td><td>Leads a document image to the CCD.</td><td></td></tr>
<tr><td>2</td><td>No. 2 mirror</td><td>Leads a document image to No. 3 mirror.</td><td></td></tr>
<tr><td>3</td><td>No. 1 mirror</td><td>Leads a document image to No. 2 mirror.</td><td></td></tr>
<tr><td>4</td><td>Scanner lamp</td><td>Radiates light on a document for the CCD to scan the document image.</td><td></td></tr>
<tr><td>5</td><td>Yellow toner cartridge</td><td>Attaches yellow toner to electrostatic latent images on the photoconductor.</td><td></td></tr>
<tr><td>6</td><td>Magenta toner cartridge</td><td>Attaches magenta toner to electrostatic latent images on the photoconductor.</td><td></td></tr>
<tr><td>7</td><td>Cyan toner cartridge</td><td>Attaches cyan toner to electrostatic latent images on the photoconductor.</td><td></td></tr>
<tr><td>8</td><td>Black toner cartridge</td><td>Attaches black toner to electrostatic latent images on the photoconductor.</td><td></td></tr>
<tr><td>9</td><td>Discharge lamp</td><td>Discharges the photoconductor.</td><td></td></tr>
<tr><td>10</td><td>Main charger unit</td><td>Charges the magenta photoconductor negatively.</td><td></td></tr>
<tr><td>11</td><td>LED unit</td><td>Converts the color component image signal sent from the ICU PWB into LED light, and radiate it to the OPC drum.</td><td></td></tr>
<tr><td>12</td><td>Doctor blade</td><td>Regulates the toner quantity on the developing roller.</td><td></td></tr>
<tr><td>13</td><td>Supply roller</td><td>Supplies toner to the developing roller.</td><td></td></tr>
<tr><td>14</td><td>Developing roller</td><td>Attaches toner to the photoconductor.</td><td></td></tr>
<tr><td>15</td><td>Cleaning blade</td><td>Cleans residual toner from the photoconductor.</td><td></td></tr>
<tr><td>16</td><td>OPC drum unit</td><td>Forms electro-static latent images.</td><td></td></tr>
<tr><td>17</td><td>CCD lens</td><td>Reduces document images (light) and projects it to the CCD.</td><td></td></tr>
<tr><td>18</td><td>CCD PWB</td><td>Reads document images (photo signals) and converts them into electrical signals.</td><td></td></tr>
<tr><td>19</td><td>Transfer roller (K)</td><td>Applies the transfer voltage to the transfer belt.</td><td></td></tr>
<tr><td>20</td><td>Transfer roller (C)</td><td>Applies the transfer voltage to the transfer belt.</td><td></td></tr>
<tr><td>21</td><td>Transfer roller (M)</td><td>Applies the transfer voltage to the transfer belt.</td><td></td></tr>
<tr><td>22</td><td>Transfer roller (Y)</td><td>Applies the transfer voltage to the transfer belt.</td><td></td></tr>
</tbody>
</table>

No.	Parts		Note
	Name	Function	
23	Transfer belt	Transfers toner images of the photoconductor onto paper.	
24	Waste toner box (Transfer section)	Collects waste toner on the transfer belt.	
25	Lift-up unit	Lifts the transfer belt.	
26	Paper pickup roller (No. 1 tray)	Sends paper to the paper feed roller.	
27	Idle roller	Applies a pressure to paper and the transport roller to provide transport power of the transport roller to paper.	
28	Manual paper feed roller	Feed paper to the paper transport section.	
29	Paper pickup roller	Sends paper to the paper feed roller.	Manual paper feed section
30	Separation roller	Separates paper to prevent double feed.	
31	Manual paper transport roller	Transports paper to the resist roller.	
32	Upper resist roller	Transports paper to the transfer section.	
33	Lower resist roller	Transports paper to the transfer section.	
34	Idle roller	Prevents paper skew.	
35	Paper transport roller 1	Transports paper to the resist roller.	
36	Paper feed roller (No. 1 tray)	Feed paper to the paper transport section.	
37	Separation roller (No. 1 tray)	Separates paper to prevent double feed.	
38	Idle roller	Applies a pressure to paper and the transport roller to provide transport power of the transport roller to paper.	
39	Paper transport roller 2	Transports paper to the transport roller 1.	
40	Fusing unit	Fuses toner on paper.	
41	Lower heat roller thermistor	Detects the temperature on the fuser roller surface.	
42	Lower heat roller thermostat	Detects an abnormally high temperature and turns off the heater lamp.	
43	Lower heat roller	Heats and presses toner on paper to fuse toner on paper.	
44	Lower heater lamp	Heats the lower fuser roller.	
45	Lower separation pawl	Mechanically separates paper which was not separated naturally from the lower heat roller.	
46	Fusing transport roller	Transports paper after fusing.	
47	Idle roller	Applies a pressure to paper and the transport roller to provide transport power of the transport roller to paper.	
48	Gate	Switches the paper exit path. (face up, face down)	
49	Upper heater lamp	Heats the heat roller.	
50	Upper heat roller	Heats and presses toner on paper to fuse toner on paper.	
51	OPC drum	Forms latent static electrostatic images with LED light.	
52	Upper heat roller thermistor	Detects the temperature on the heat roller surface.	
53	Upper heat roller thermostat	Detects an abnormally high temperature and turns off the heater lamp.	
54	Idle roller	Applies a pressure to paper and the transport roller to provide transport power of the transport roller to paper.	
55	Transfer belt cleaning blade	Cleans toner on the transfer belt.	
56	Paper transport roller 3	Transport paper to the paper exit roller.	
57	Belt waste toner transport shaft	Transports waste toner on the transfer belt to the waste toner box.	
58	Paper exit roller	Discharges paper to outside of the machine.	
59	Idle roller	Applies a pressure to paper and the transport roller to provide transport power of the transport roller to paper.	
60	Drum	Forms electrostatic latent images by LED light.	
61	Document length sensor (L2)	Detects the tray document length.	
62	Document length sensor (L1)	Detects the tray document length.	
63	Document set sensor (W0)	Detects presence of document.	
64	Document width sensor (W1, W2, W3)	Detects the document width.	
65	Pickup roller	Picks up a document.	
66	Paper feed roller	Feeds and transports a document.	
67	Paper entry sensor (PAPER)	Detects transport of a document.	
68	PS roller	Synchronizes the document lead edge and the image lead edge.	
69	PS follower roller	Synchronizes the document lead edge and the image lead edge.	
70	Transport roller	Transports a document.	
71	Transport follower roller	Transports a document.	
72	Paper exit sensor (PO)	Detects transport of a document.	
73	Paper exit follower roller	Discharges a document.	
74	Paper exit roller	Discharges a document.	
75	Reverse gate	Opens/closes the document reverse path.	
76	Paper exit gate	Switches the discharged paper path to the intermediate tray or to the paper exit tray.	
77	Intermediate tray	Receives paper in document reverse operation.	

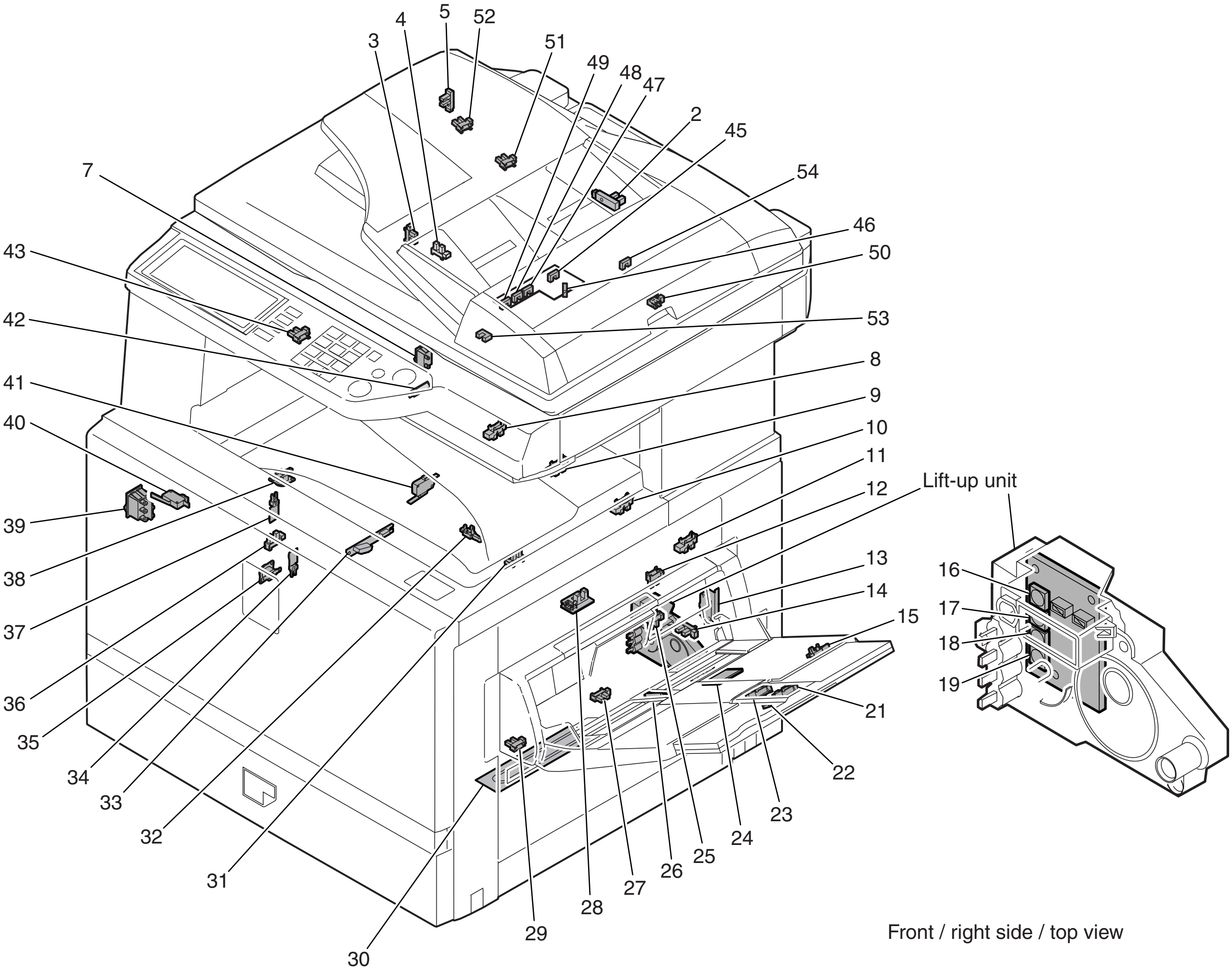
F. Motors, clutches, solenoids, fans



No.	Parts		Code, signal name	Type
	Name	Function		
1	Exit select gate solenoid	Drives the exit path select gate.	GSS	Electromagnetic solenoid
2	Offset motor (Slide motor)	Drives the paper exit offset.	OSM	Stepping motor
3	Fusing drive motor	Drives the fusing unit.	FUSM	Stepping motor
4	Exhaust fan motor 1	Exhaust and cools the fusing section.	VFMP	DC motor
5	Exhaust fan motor 2	Exhaust and cools the fusing section.	VFMS	DC motor
6	Power unit cooling fan motor	Cools the power unit.	PSFM	DC motor
7	Drum motor (Y)	Drives the yellow photoconductor unit.	DM_Y	Stepping motor
8	Drum motor (M)	Drives the magenta photoconductor unit.	DM_M	Stepping motor
9	Drum motor (C)	Drives the cyan photoconductor unit.	DM_C	Stepping motor
10	Drum motor (K)	Drives the black photoconductor unit.	DM_K	Stepping motor
11	Printer controller cooling fan motor	Cools the printer controller.		
12	PS motor	Drives and turns ON/OFF the resist roller.	PSM	Stepping motor
13	Process cooling fan motor	Exhaust and cools the process section.	PCFM	DC motor
14	Scanner motor	Drives the scanner unit.	SM	Stepping motor
15	PS front clutch	Transmits power of the paper feed motor to the manual paper feed unit. (Controls ON/OFF.)	MTRC	Electromagnetic clutch
16	Paper feed motor	Drives the paper feed section and the paper transport section.	PFM	DC servo motor
17	Paper feed clutch	Transmits power of the paper feed motor to each transport roller. (Controls ON/OFF.)	TRC	Electromagnetic clutch
18	Manual paper feed clutch	Controls ON/OFF of the manual paper feed roller. Presses the paper pickup roller to paper.	MPFC	Electromagnetic clutch
19	Paper feed drive clutch	Controls ON/OFF of the paper feed roller.	CPFC1	Electromagnetic clutch
20	No. 1 cassette lift-up motor	Drives the lift plate.	LUM1	Synchronous motor
21	Belt lift-up motor	Lifts the transfer belt unit.	BLUM	Stepping motor

No.	Parts		Code, signal name	Type
	Name	Function		
22	Calibration plate open/ close solenoid	Switches the image density sensor.	CALS	Electromagnetic solenoid
23	Transfer belt motor	Drives the transfer belt.	BTM	Stepping motor
24	Pickup solenoid	Drives the document pickup roller.	PSOL	Electromagnetic solenoid
25	Pressure release solenoid	Paper exit roller pressure, release, control	RSOL	Electromagnetic solenoid
26	PS clutch	Document resist clutch	CLH	Electromagnetic clutch
27	RSPF motor	RSPF drive motor	MOT	Stepping motor
28	Gate solenoid	Gate switch solenoid in duplex	GSOL	Electromagnetic solenoid

G. Sensors, switches and heaters

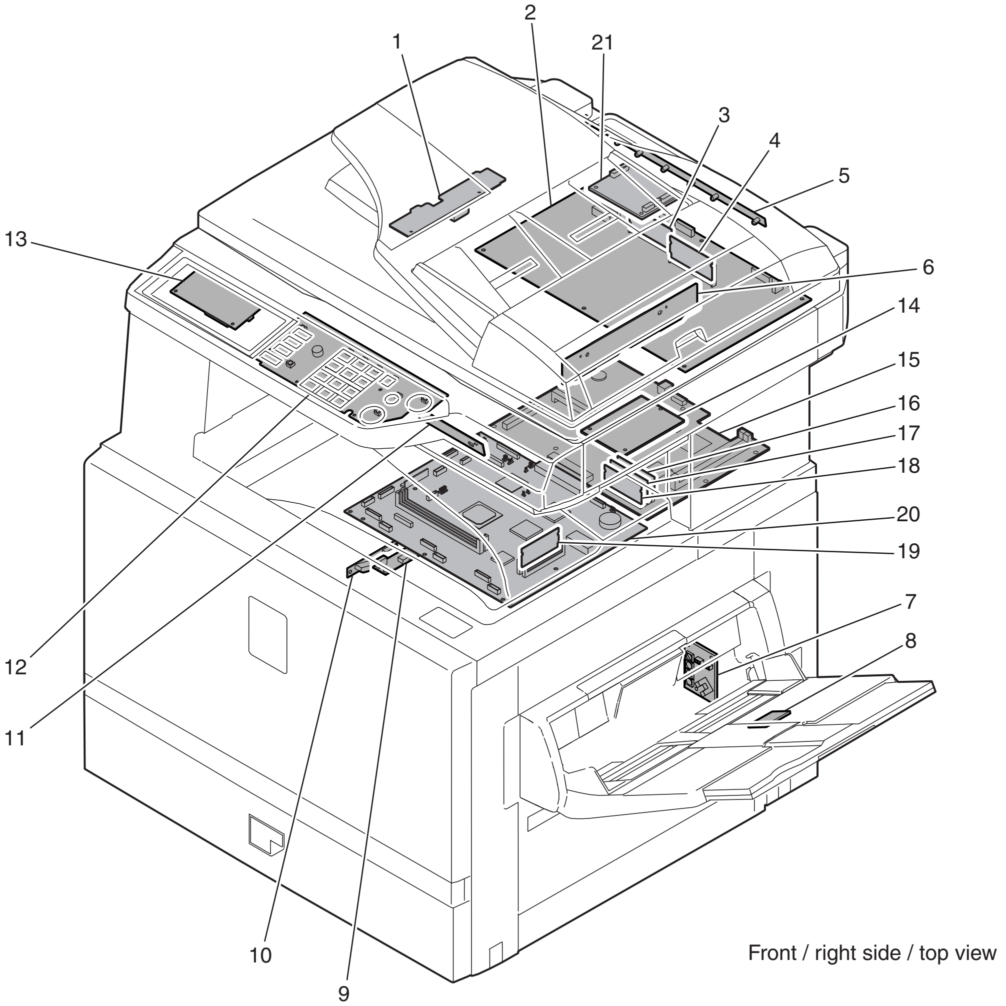


Front / right side / top view

No.	Parts		Code, signal name	Type
	Name	Function		
2	O/C open/close sensor	Detects open/close of the document cover. (A timing signal of document size detection is produced.)	OCSW	Photo sensor (Photo transmission)
3	Offset home position sensor	Detects the offset home position.	HPOS	Photo sensor (Photo transmission)
4	Paper exit tray full detection	Detects full of the face down paper exit tray.	TFD2	Photo sensor (Photo transmission)
5	Mirror home position sensor	Detects the scanner home position.	MHPS	Photo sensor (Photo transmission)
7	Dehumidifier heater switch	Turns ON/OFF the dehumidifier heater installed in the scanner (reading) section and the paper feed section.	DHSW (Japan only)	—
8	Toner empty sensor (Y)	Detects toner empty (Y).	TES_Y	Photo sensor (Photo transmission)
9	Toner empty sensor (M)	Detects toner empty (M).	TES_M	Photo sensor (Photo transmission)
10	Toner empty sensor (C)	Detects toner empty (C).	TES_C	Photo sensor (Photo transmission)
11	Toner empty sensor (K)	Detects toner empty (K).	TES_K	Photo sensor (Photo transmission)
12	No. 1 paper transport sensor	Detects paper in front of the resist roller.	PPD1	Photo sensor (Photo transmission)

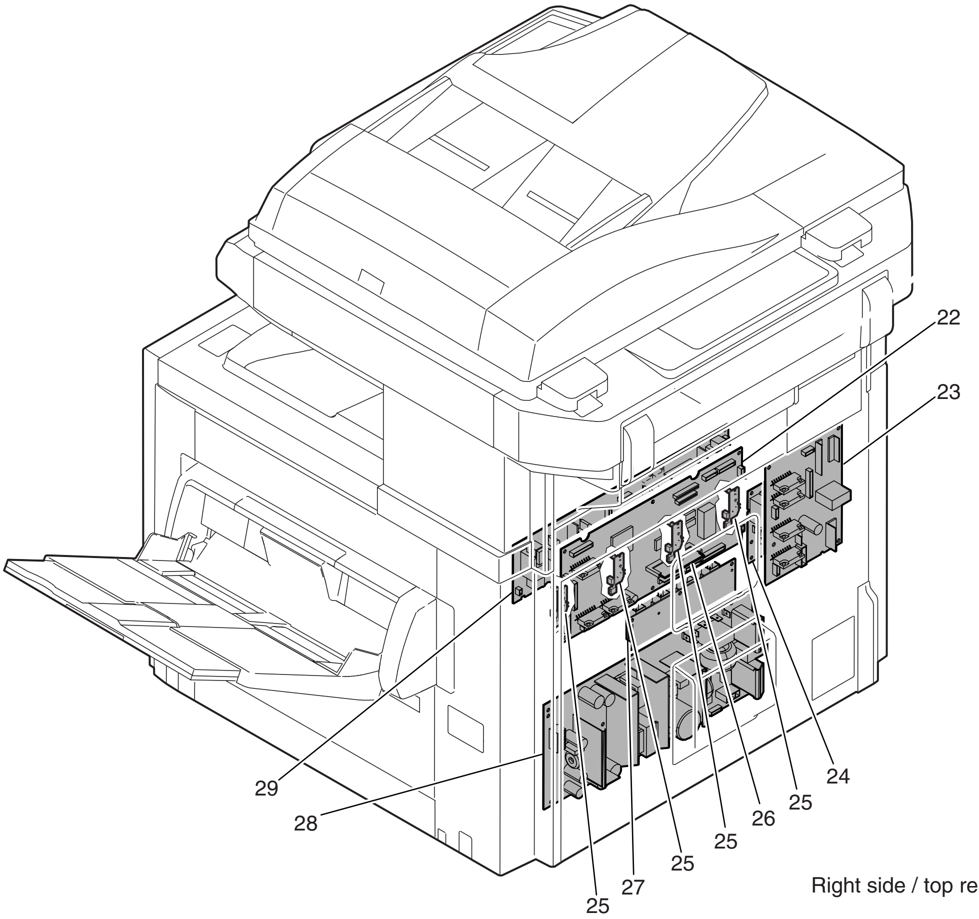
No.	Parts		Code, signal name	Type
	Name	Function		
13	Paper feed door open detection	Detects open/close of the paper feed door.	DSWR	Micro switch
14	Manual feed paper empty detection	Detects paper empty on the paper tray.	MPED	Photo sensor (Photo transmission)
15	Manual feed tray pulling out detection 2	Detects the paper tray position.	MTOP2	Contact switch
16	No. 1 cassette paper size detection 1	Detects the paper size set by the paper size set blocks.	C1SS1	Contact switch
17	No. 1 cassette paper size detection 2	Detects the paper size set by the paper size set blocks.	C1SS2	Contact switch
18	No. 1 cassette paper size detection 3	Detects the paper size set by the paper size set blocks.	C1SS3	Contact switch
19	No. 1 cassette paper size detection 4	Detects the paper size set by the paper size set blocks.	C1SS4	Contact switch
21	Manual feed paper length detection 2	Detects the paper length.	MPLD2	Photo sensor (Photo transmission)
22	Manual feed tray pulling out detection 1	Detects the paper tray position.	MTOP1	Contact switch
23	Manual feed paper length detection 1	Detects the paper length.	MPLD1	Photo sensor (Photo transmission)
24	Humidity sensor	Detects the ambient humidity.	HUD	—
25	No. 1 cassette paper feed detection	Detects paper exit from No. 1 paper tray.	PFD1	Photo sensor (Photo transmission)
26	Manual feed paper width detection	Detects the paper width.	MPWS	Volume (Variable resistor)
27	No. 1 cassette lift-up upper limit detection	Detects the upper limit position of paper.	LUD1	Photo sensor (Photo transmission)
28	PS front sensor	Detects paper in front of PS.	PPD2	Photo sensor (Photo transmission)
29	No. 1 cassette paper empty detection	Detects paper empty on the paper tray.	PED1	Photo sensor (Photo transmission)
30	Dehumidifier heater	Dehumidifier hater for the main body cassette. (Japan only)	DH	—
31	Belt lift-up upper limit detection	Detects lift-up or lift-down of the transfer belt.	BLUD	Photo sensor (Photo transmission)
32	Belt waste toner full detection	Detects belt waste toner full.	BTNF	Contact switch
33	Color toner concentration (process control) sensor/Auto image Reg.	Detects the toner patch density (color toner) in image density correction operation. 2-sensors on PWB.	PCS_C	Photo sensor (Photo transmission)
34	Lower heat roller thermistor	Detects the temperature on the heat roller surface.	THSD	Thermistor
35	Lower heat roller thermostat	Detects an abnormally high temperature and turns off the heater lamp.	HLTS2	Thermostat Thermal switch
36	Machine paper exit sensor 1	Detects discharged paper.	POD1	Photo sensor (Photo transmission)
37	Upper heat roller thermistor	Detects the temperature on the heat roller surface.	THSU	Thermistor
38	Upper heat roller thermostat	Detects an abnormally high temperature and turns off the heater lamp.	HLTS1	Thermostat Thermal switch
39	Power switch	Used to switch the nighttime mode/normal mode.	MSW	Seesaw switch
39	Main switch	Turns ON/OFF the main power.	MSW	Seesaw switch
40	Front door open detection	Detects open/close of the front door.	DSWF	Micro switch
41	Paper exit door open detection	Detects open/close of the paper exit door.	DSWL	Micro switch
42	Face-up paper exit tray full detection	Detects full of the face-up paper exit tray.	TFD	Photo sensor (Photo transmission)
43	Machine paper exit sensor 2	Detects discharged paper.	POD2	Photo sensor (Photo transmission)
45	Document set sensor	Detects presence of a document.	W0	Photo sensor (Photo transmission)
46	Open/close sensor	Detects open/close of the paper feed unit.	COVER	Photo sensor (Photo transmission)
47	Document width sensor (A4R, LTR, A5)	Detects the document width on the tray.	W1	Photo sensor (Photo transmission)
48	Document width sensor (B4, B5)	Detects the document width on the tray.	W2	Photo sensor (Photo transmission)
49	Document width sensor (WLTR, A5R, A4, LT)	Detects the document width on the tray.	W3	Photo sensor (Photo transmission)
50	Paper entry sensor	Detects presence of a document.	PAPER	Photo sensor (Photo transmission)
51	Document length detection SW (Short)	Detects the document length on the tray.	L1	Photo sensor (Photo transmission)
52	Document length detection SW (Long)	Detects the document length on the tray.	L2	Photo sensor (Photo transmission)
53	Book sensor	Detects floating of the RSPF.	COVER OPEN	Photo sensor (Photo transmission)
54	Paper exit sensor	Detects presence of a document.	PO	Photo sensor (Photo transmission)

H. PWB 1



No.	Parts	
	Name	Function
1	CL inverter PWB	Drives the xenon lamp.
2	MFP PWB	Corrects images from the CCD and controls the operation panel.
3	Flash PWB (OP)	Includes the program to drive the OP PWB.
4	Flash PWB (MFP)	Includes the program to drive the MFP PWB.
5	Document detection LED PWB	Emits light for document size detection.
6	CCD PWB	Converts document images into electric signals.
7	Lift-up unit PWB tray	Detects the cassette size and interfaces the cassette lift-up motor signals.
8	Manual feed VR PWB	Outputs manual feed width signals.
9	Process control PWB (for black)	Outputs the black toner density on the transfer belt.
10	Process control PB (for color)	Outputs the color toner density on the transfer belt.
11	Document detection light receiving PWB	Outputs the document size detection signal.
12	Operation PWB	Outputs the key operation signal.
13	INV/LVDS PWB	Interfaces LCD from the MFPPWB and the touch panel signal, and drives the LCD backlight.
14	Network PWB	Network connection PWB
15	PRT controller PWB	Printer control PWB (HDD, NIC standard)
16	Flash PWB (FONT)	PWB which has font data
17	Flash PWB (PCL)	PWB which has the printer controller control program
18	Flash PWB (BOOT)	PWB which has the program to boot the printer controller
19	Flash PWB (ICU)	Includes the program to drive the ICU PWB.
20	ICU PWB	Performs image process and controls LED.
21	Interface PWB	Signal interface

H. PWB 2

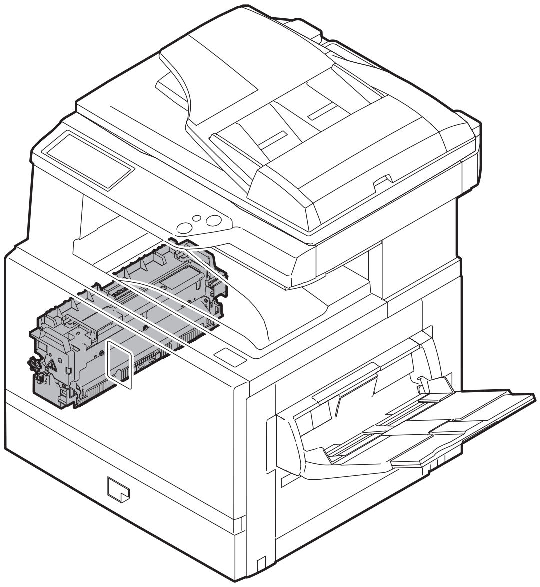


Right side / top rear / view

No.	Parts		Model
	Name	Function	
22	PCU PWB	Controls the engine section.	
23	Driver PWB	Controls the DC load power and drive the motor.	
24	AC power PWB	Controls the power on the primary side.	
25	LED DL PWBs	Discharges electric charges on the OPC drums.	
26	Flash PWB (PCU)	Includes the program to drive the PCU PWB.	
27	High voltage TC PWB	Produces the transfer voltage.	
28	DC power PWB	Outputs the voltage on the secondary side, and controls the heater lamp.	
29	High voltage MC PWB	Produces a high voltage for the main charger and the developing bias voltage.	

[7] DESCRIPTIONS OF EACH SECTION

1. Fusing section



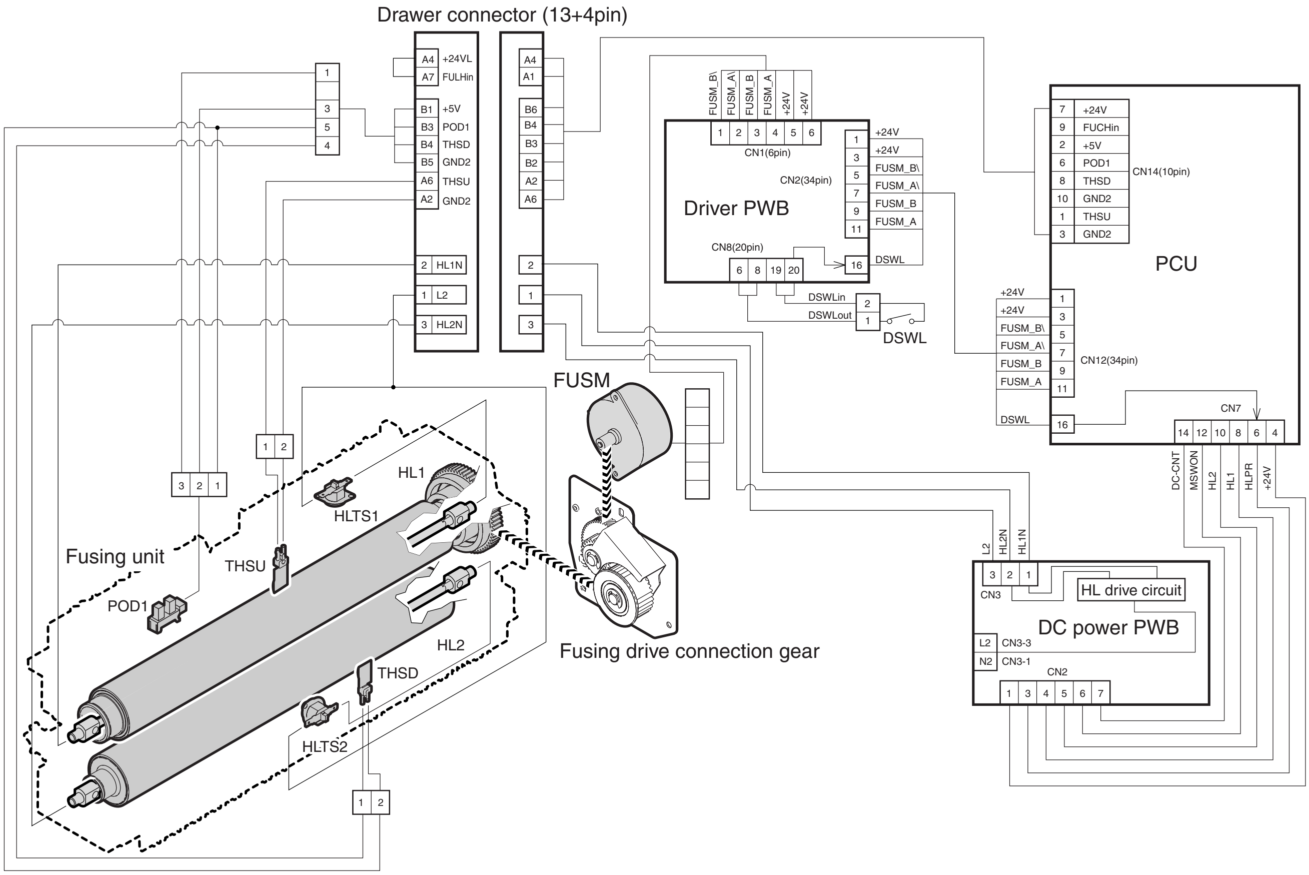
A. Operational descriptions

(1) Outline

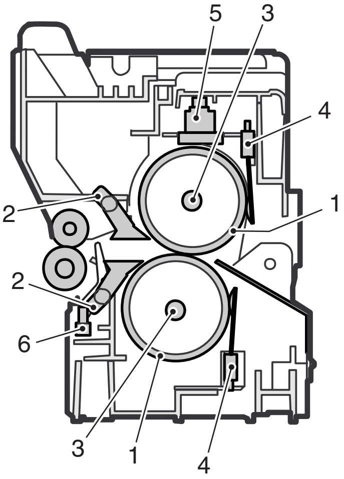
This section performs the following function and operation.

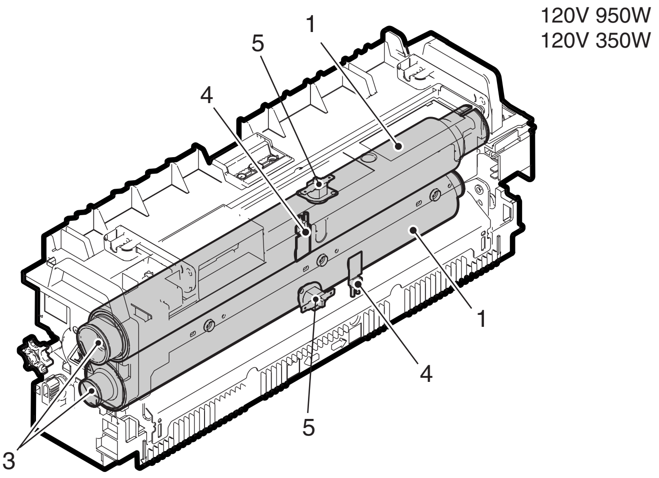
1) Toner attached to paper in the transport section is fused onto paper by heat and pressure of the heat roller.

(2) Electrical and mechanical sections


Drawer connector (13+4pin)
A4 +24VL
A7 FULHin
B1 +5V
B3 POD1
B4 THSD
B5 GND2
A6 THSU
A2 GND2
2 HL1N
1 L2
3 HL2N
A4
A1
B6
B4
B3
B2
A2
A6
2
1
3
1
3
5
4
FUSM_B\
FUSM_A\
FUSM_B
FUSM_A
+24V
+24V
1 2 3 4 5 6
CN1(6pin)
CN2(34pin)
Driver PWB
1 +24V
3 +24V
5 FUSM_B\
7 FUSM_A\
9 FUSM_B
11 FUSM_A
CN8(20pin)
6 8 19 20
16 DSWL
DSWLin
DSWLout
2
1
DSWL
7 +24V
9 FUCHin
2 +5V
6 POD1
8 THSD
10 GND2
1 THSU
3 GND2
CN14(10pin)
PCU
+24V 1
+24V 3
FUSM_B\ 5
FUSM_A\ 7
FUSM_B 9
FUSM_A 11
CN12(34pin)
DSWL 16
CN7
14 12 10 8 6 4
DC-CNT
MSWON
HL2
HL1
HLPR
+24V
FUSM
1 2
3 2 1
HL1
HLTS1
Fusing unit
THSU
POD1
HL2
THSD
HLTS2
1 2
Fusing drive connection gear
L2
HL2N
HL1N
3 2 1
CN3
HL drive circuit
DC power PWB
L2 CN3-3
N2 CN3-1
CN2
1 3 4 5 6 7

(3) Major parts/signals functions and operations





No.	Name	Code, Signal name	Function
1	Heat roller	—	Heats and presses toner to fuse it on paper. Silicon rubber rollers are used as the upper and the lower heat rollers. Teflon tube is wound around the upper heat roller.
2	Upper/lower separation pawls	—	Mechanically separate paper from the heat roller, which was not separated naturally.
3	Heater lamp	Upper: HL1, Lower: HL2	Heats the heat rollers.
4	Thermistor	Upper: THSU, Lower: THSD	Detects the surface temperature of the heat roller. (Keeps the roller surface temperature at a constant level.)
5	Thermostat	Upper: HLTS1, Lower: HLTS2	Cuts conduction of the heater lamp when an abnormally high temperature is detected.
6	Paper exit sensor	POD1	Detects paper discharged from the fusing section.
RW	Control signal	FUSM_A, A', B, B'	Drives the fusing section.
RW	Control signal	FUCHin	Fusing unit installation detecting signal
RW	Control signal	DSWL	Left cabinet open/close detection signal
RW	Control signal	HLPR	Heater lamp power relay (in the DC power PWB) drive signal

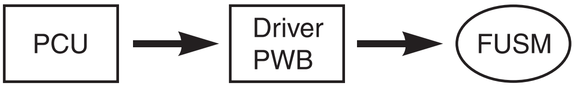
RW: Abbreviation of Related Wiring, which means the said load is specified in the related figure of the mechanical and the electrical sections.

(4) Operational descriptions

a. Fusing unit drive

To drive the fusing unit, drive power is transmitted from the drive motor (FUSM) through the connection gear to the upper heat roller gear.

The drive motor (stepping motor) is driven by the motor drive IC in the driver PWB according to the control signal sent from the PCU.



b. Heater lamp drive

The surface temperature detected by the thermistor is sent to the PCU. When the temperature is lower than the specified level, the PCU sends the heater lamp lighting signal to the heater lamp drive circuit in the DC power PWB.

The triac in the heater lamp drive circuit is turned on to apply AC power to the heater lamp, which turns on to heat the heat rollers.

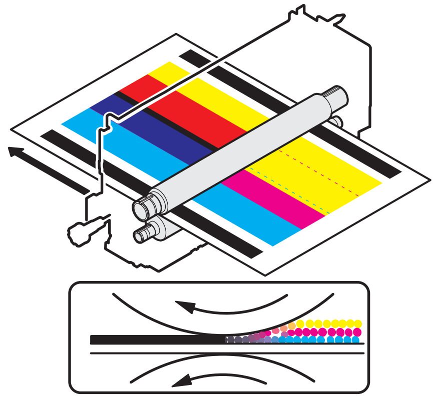
The thermostats are provided as a safety measure to prevent against an abnormally high temperature of the heat rollers.

When the thermostat is opened, the power supply (AC neutral) to the heater lamp is cut off.

c. Fusing operation

Color toner of YMCK on paper is heated and pressed by the heat rollers to be fused on paper.

At that time, color toner of YMCK is mixed to reproduce nearly actual colors of document images.



The upper and the lower heat rollers are provided to heat from above and below. This is because it is necessary to heat four layers of toner from above and below and right and left to fuse it on paper.

The upper and lower heat rollers are of silicon rubber. This is because of the following reasons:

1) To provide a greater nip quantity and a higher heating capacity for paper.
2) The soft, flexible rollers press multi-layer toner without deformation to fuse on paper.
3) An even pressure is applied to an uneven surface of multi-layer toner.

d. Fusing temperature control

The temperature sensor is provided at the center of the upper and the lower heat rollers.

The temperature sensor at the center detects the heat roller temperature and controls the heater lamp to keep the fusing temperature at the specified level.

The fusing temperature is switched according to the machine condition and paper type selected.

(Example: 200V series)

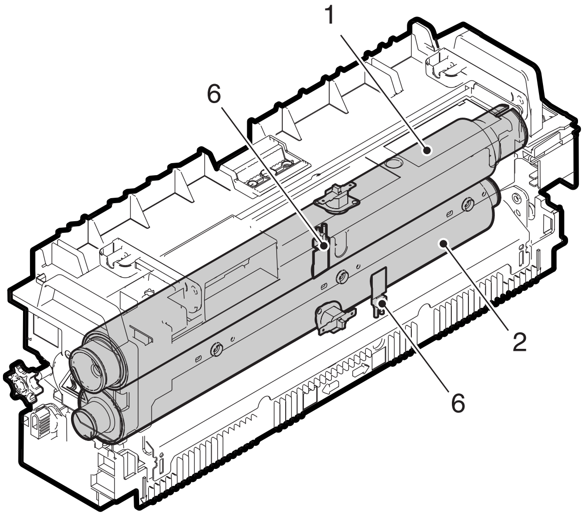
	Upper heat roller		Lower heat roller
Ready state	160°C		145°C
Power save mode	138°C		OFF
Print mode	Normal paper B/W	160°C	145°C
	OHP sheet	170°C	155°C
	Heavy paper 1	170°C	135°C
	Heavy paper 2	175°C	145°C
	Envelope	180°C	145°C

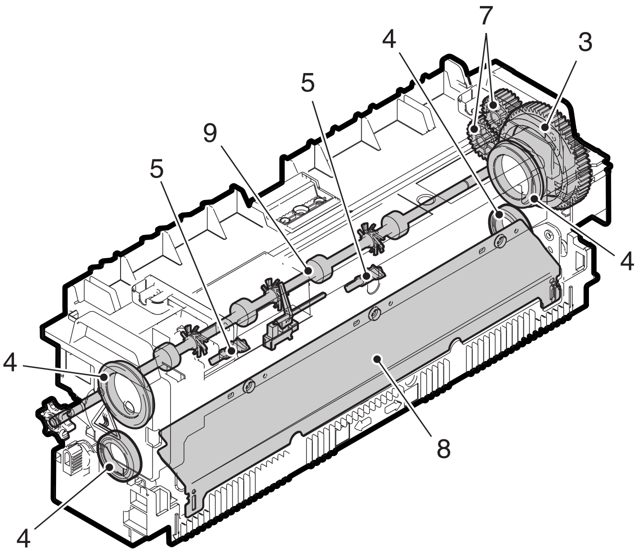
B. Disassembly/Assembly/Maintenance

(1) Fusing section maintenance target parts

×: Check (Clean, replace, or adjust as necessary.) ❍: Clean ▲: Replace △: Adjust ☆: Lubricate ❏: Shift position

Unit name	No.	Part name	When calling	50K	100K	150K	200K	250K	300K	350K	400K	Remark
Fusing section	1	Upper heat roller	×	×	▲	×	▲	×	▲	×	▲	Replace at 100K or within 2 years.
	2	Lower heat roller	×	×	▲	×	▲	×	▲	×	▲	Replace at 100K or within 2 years.
	3	Heat roller gear	×	×	▲	×	▲	×	▲	×	▲	100K
	4	Heat roller bearing	×	×	▲	×	▲	×	▲	×	▲	100K
	5	Separation pawl	×	×	▲	×	▲	×	▲	×	▲	100K
	6	Thermistor	×	×	▲	×	▲	×	▲	×	▲	100K
	—	Bearings	×	×	×	×	×	×	×	×	×	
	7	Gears	×	☆	☆	☆	☆	☆	☆	☆	☆	
	8	Paper guides	❍	❍	❍	❍	❍	❍	❍	❍	❍	
	9	Paper exit roller	×	×	×	×	×	×	×	×	×	
	—	Fusing unit		×	▲	×	▲	×	▲	×	▲	Replace the unit at 100K or within 2 years.

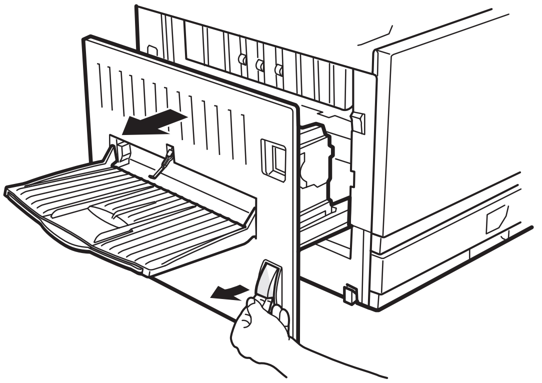




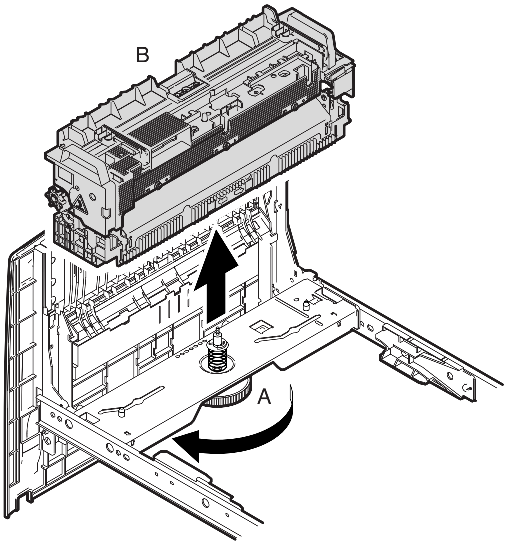
(2) Maintenance parts replacement procedure

a. Fusing unit removal

1) Open the left cabinet.

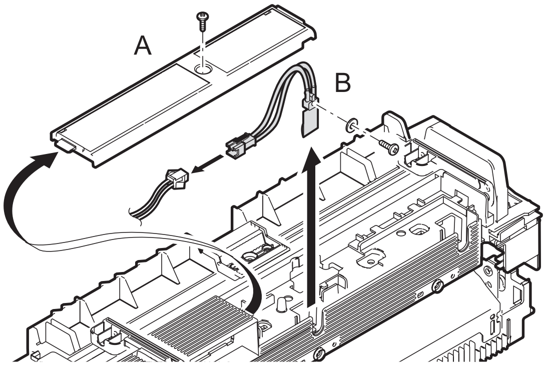


2) Loosen the roller knob (A) and remove the fusing unit (B).



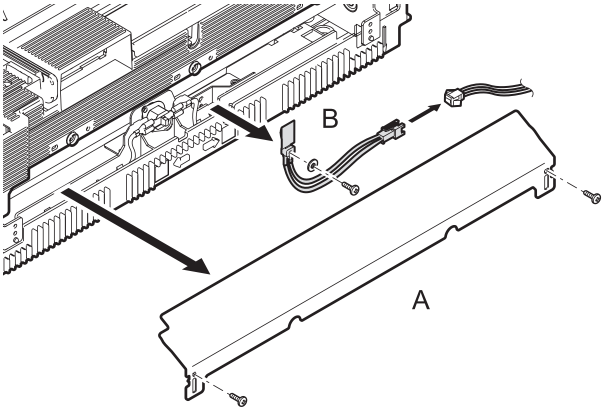
b. Upper thermistor

1) Remove the fusing until from the machine.
2) Remove the screw and the harness cover (A).
3) Remove the connector, the screw, and the harness, and remove the thermistor (B).



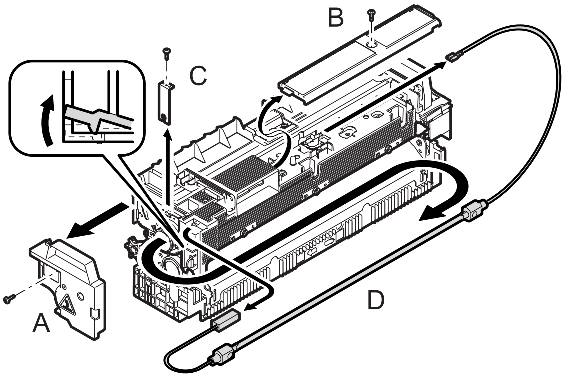
c. Lower thermistor

1) Remove the fusing unit from the machine.
2) Remove the screws, and remove the fusing front PG (A).
3) Remove the connector, the screw, and the harness, and remove the thermistor (B).



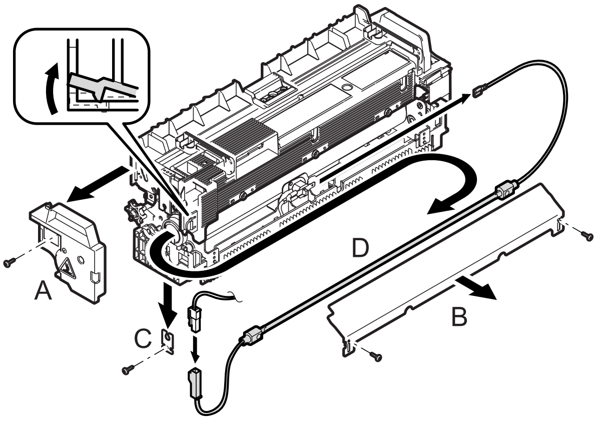
d. Upper heater lamp

1) Remove the fusing unit from the machine.
2) Remove the screw and remove the fusing front cover (A). Remove the harness cover (B).
3) Remove the connector, the screw, and the lamp holder (C), and remove the upper heater lamp (D).



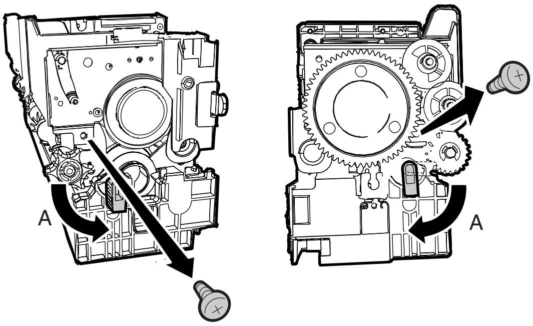
e. Lower heater lamp

1) Remove the fusing unit from the machine.
2) Remove the screw, and remove the fusing front cover (A).
3) Remove the screw, and remove the fusing front PG (B).
4) Remove the connector, the screw, and the lamp holder (C), and remove the lower heater lamp (D).

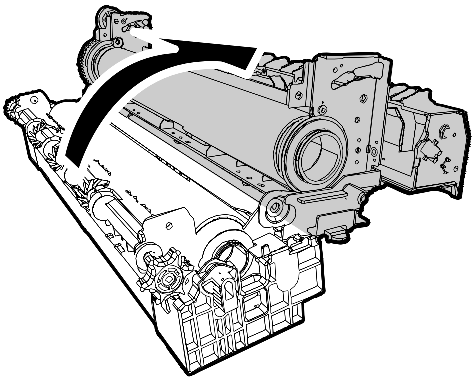


f. Upper heat roller, bearing, gear

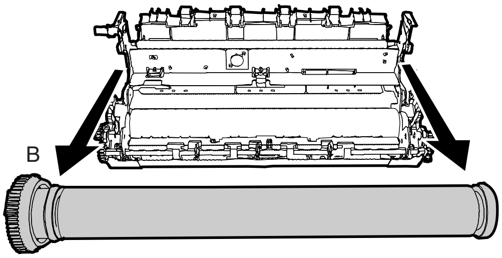
1) Remove the fusing unit from the machine.
2) Remove the lever (A), and release the roller pressure.
3) Remove the screw.



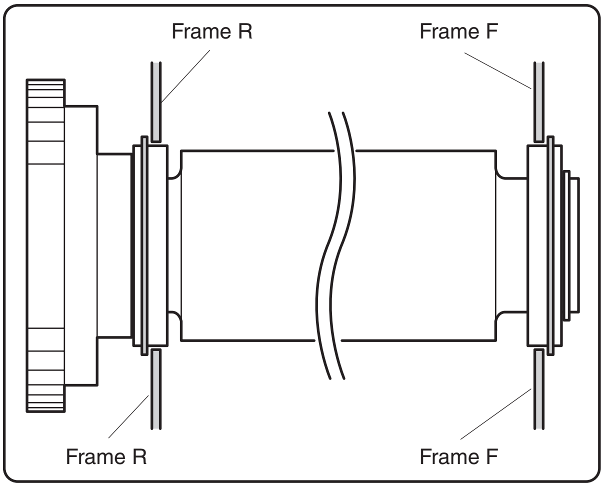
4) Open the upper fusing section.



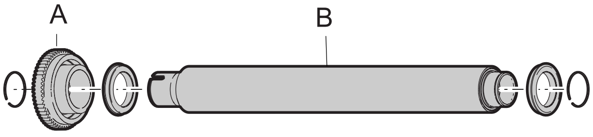
5) Remove the heat roller upper unit (B).



∗ When assembling, put the flanges of the upper bearings outside of the frames F and R.

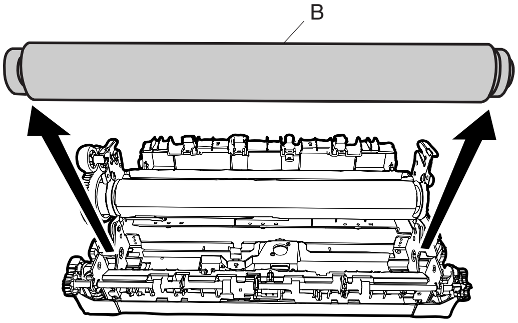


6) Remove the C-ring and the bearing, and remove the gear (A) and the heat roller (B).

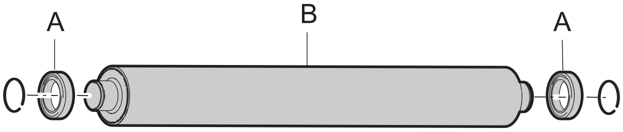


g. Lower heat roller, bearing

1) Remove the fusing unit from the machine.
2) Remove the screw, and open the upper fusing section.
3) Remove the lower heat roller unit (B).

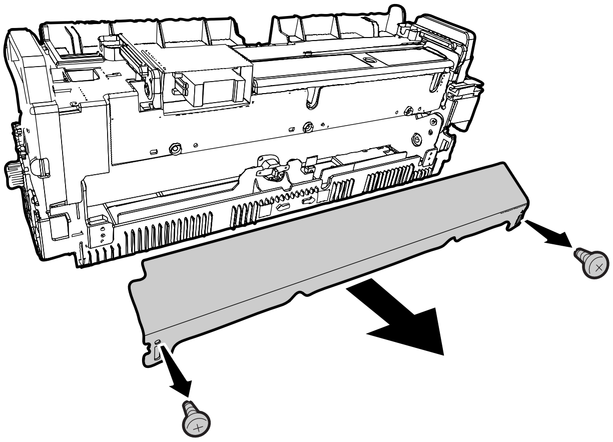


4) Remove the C-ring and the bearing (A), and remove the heat roller (B).



h. Paper guide

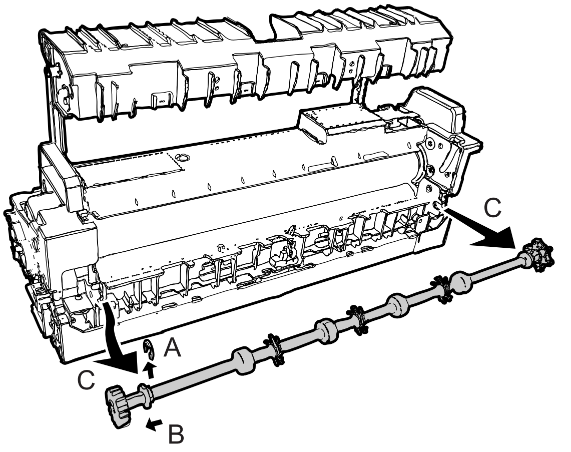
1) Remove the fusing unit from the machine.
2) Remove the screw, and remove the paper guide.



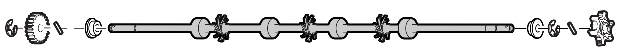
Note: Refer to the adjustment (ADJ13) when installing the paper guide.

i. Paper exit roller

1) Remove the fusing unit from the machine.
2) Open the upper fusing section.
3) Remove the E-ring (A), and shift the bearing (B).
4) Remove the paper exit roller unit (C).

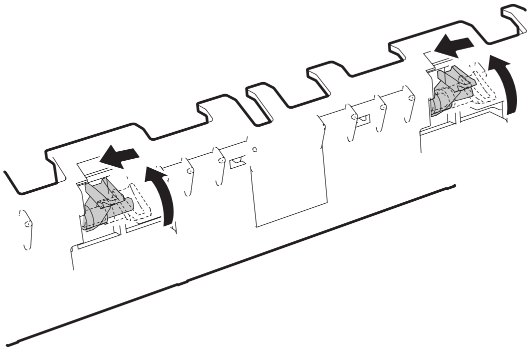


5) Remove the E-ring, the gear, the pin, and the bearing.

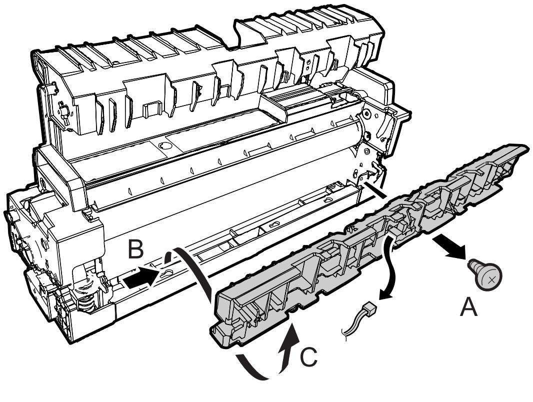


j. Lower separation pawl

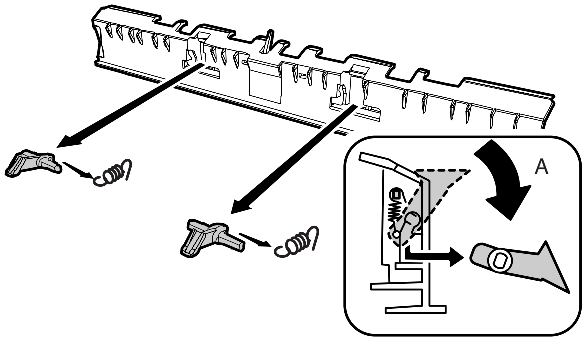
1) Remove the fusing unit from the machine.
2) Open the upper fusing section.
3) Remove the paper exit roller unit.
4) Lift the separation pawl and shift it to the right and lift it from the heat roller.



5) Remove the POD1 connector.
6) Remove the screw, and slide and remove the lower separation pawl mounting plate.

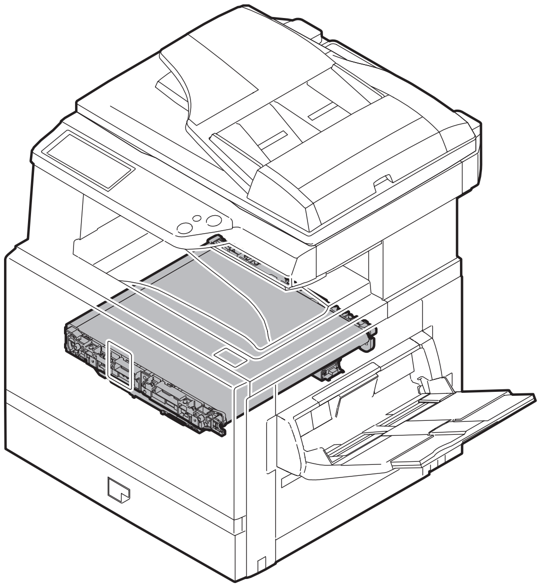


7) Rotate the separation pawl in direction A and remove if from the mounting plate. Remove the spring.



Note: When attaching the separation pawl, check that the separation pawl is in contact with the heat roller.

2. Transfer section



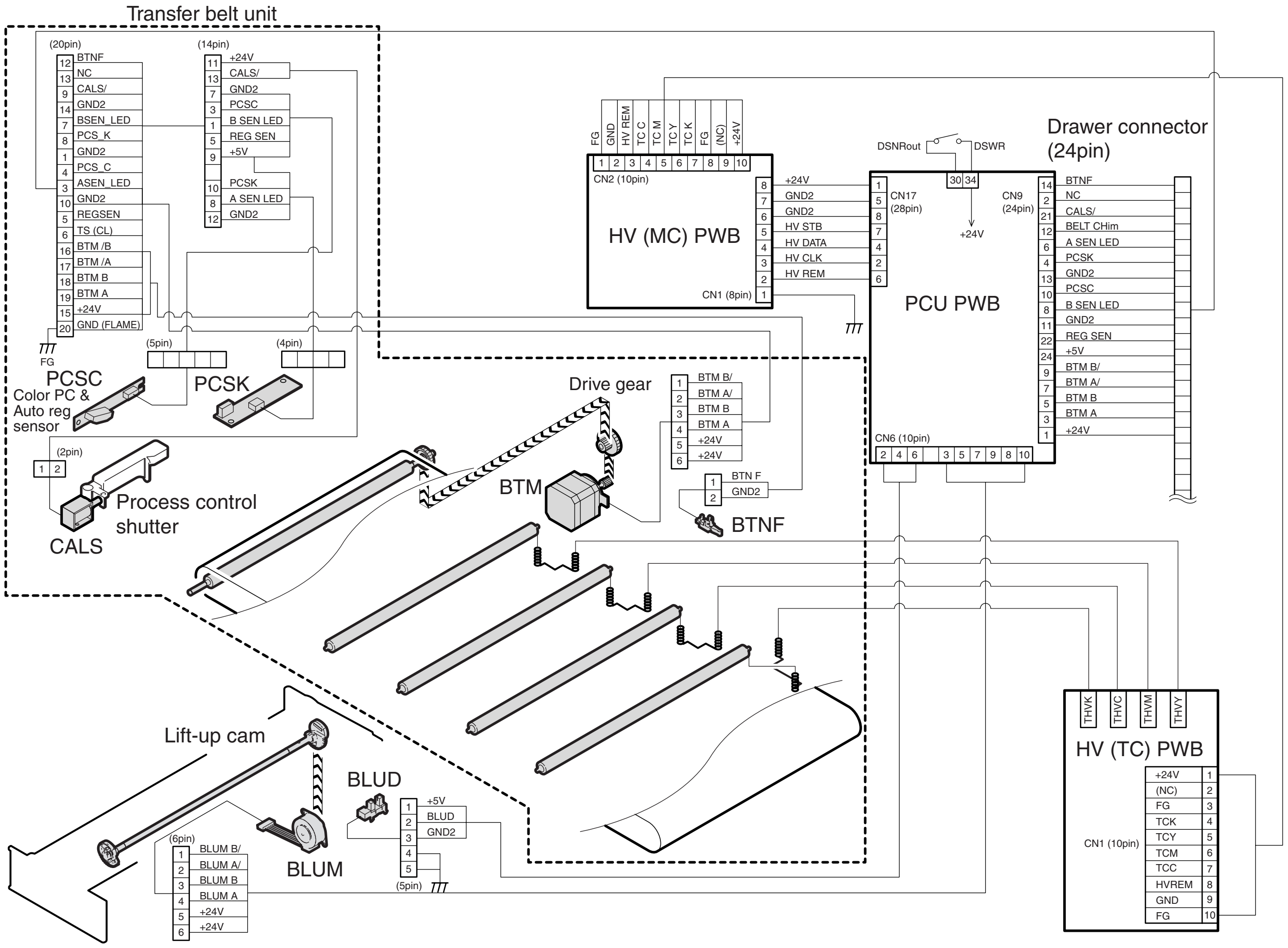
A. Operational descriptions

(1) Outline

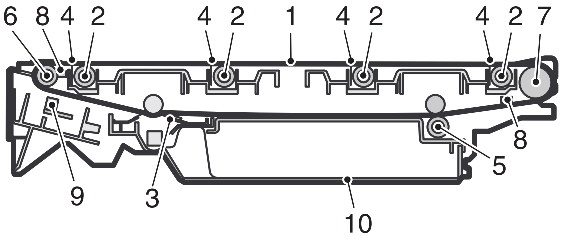
This section functions and operates as follows:

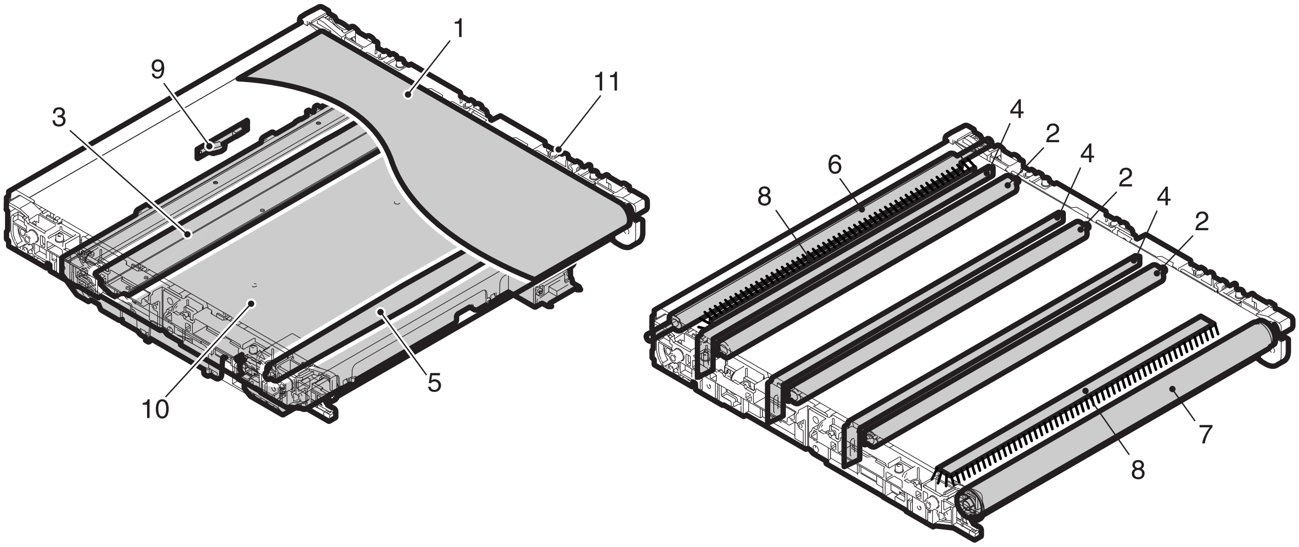
1) A high, positive voltage is applied to the transfer roller to charge the transfer belt and paper on it positively, attracting negatively charged toner images on the OPC drum onto paper.

(2) Electrical and mechanical sections


Transfer belt unit
(20pin)
12 BTNF
13 NC
9 CALS/
14 GND2
7 BSEN_LED
8 PCS_K
1 GND2
4 PCS_C
3 ASEN_LED
10 GND2
5 REGSEN
6 TS (CL)
16 BTM /B
17 BTM /A
18 BTM B
19 BTM A
15 +24V
20 GND (FLAME)
FG
(14pin)
11 +24V
13 CALS/
7 GND2
3 PCSC
1 B SEN LED
5 REG SEN
9 +5V
10 PCSK
8 A SEN LED
12 GND2
(5pin)
(4pin)
PCSC
Color PC &
Auto reg
sensor
PCSK
(2pin)
1 2
Process control
shutter
CALS
FG
GND
HV REM
TC C
TC M
TC Y
TC K
FG
(NC)
+24V
1 2 3 4 5 6 7 8 9 10
CN2 (10pin)
HV (MC) PWB
8 +24V
7 GND2
6 GND2
5 HV STB
4 HV DATA
3 HV CLK
2 HV REM
CN1 (8pin) 1
DSNRout
DSWR
30 34
+24V
1 5 8 7 4 2 6
CN17
(28pin)
CN9
(24pin)
PCU PWB
CN6 (10pin)
2 4 6 3 5 7 9 8 10
Drawer connector
(24pin)
14 BTNF
2 NC
21 CALS/
12 BELT CHim
6 A SEN LED
4 PCSK
13 GND2
10 PCSC
8 B SEN LED
11 GND2
22 REG SEN
24 +5V
9 BTM B/
7 BTM A/
5 BTM B
3 BTM A
1 +24V
Drive gear
1 BTM B/
2 BTM A/
3 BTM B
4 BTM A
5 +24V
6 +24V
BTM
1 BTN F
2 GND2
BTNF
Lift-up cam
BLUD
1 +5V
2 BLUD
3 GND2
4
5
(5pin)
(6pin)
1 BLUM B/
2 BLUM A/
3 BLUM B
4 BLUM A
5 +24V
6 +24V
BLUM
THVK
THVC
THVM
THVY
HV (TC) PWB
CN1 (10pin)
+24V 1
(NC) 2
FG 3
TCK 4
TCY 5
TCM 6
TCC 7
HVREM 8
GND 9
FG 10

(3) Major parts/signals functions and operations





No.	Name	Code, signal name	Function
1	Transfer belt	—	Transfers toner images on the OPC drum onto paper.
2	Transfer roller	—	Applies a transfer voltage to the transfer belt.
3	Belt cleaning blade	—	Cleans and removes toner from the transfer belt.
4	Transfer discharge sheet	—	Discharges the transfer belt.
5	Transfer belt cleaning roller	—	Removes paper dust from the transfer belt.
6	Transfer belt drive roller	—	Drives the transfer belt.
7	Transfer belt follower roller	—	Transfer drive follower roller
8	Transfer belt cleaning brush	—	Cleans the back surface of the transfer belt.
9	Process control sensor	Monochrome: PCSK Color: PCSC	Detects the toner patch density in image density correction.
10	Transfer waste toner tank	—	Collects waste toner on the transfer belt.
11	Transfer belt unit		
RW	Belt motor	BTM	Drives the transfer belt.
RW	Calibration solenoid	CALS	Drives the shutter on the process control sensor.
RW	Waste toner full detection switch	BTNF	Detects waste toner full in the waste toner box.
RW	Belt lift-up motor	BLUM	Lifts up the transfer belt unit.
RW	Belt lift-up sensor	BLUD	Detects the position of the transfer belt unit.
RW	Control signal	TC (K, C, M, Y)	Each color transfer high voltage control signal
RW	Control signal	THV (K, C, M, Y)	Each color transfer high voltage

RW: Abbreviation of Related Wiring, which means the said load is specified in the related figure of the mechanical and the electrical sections.

(4) Operational descriptions

a. Transfer belt drive

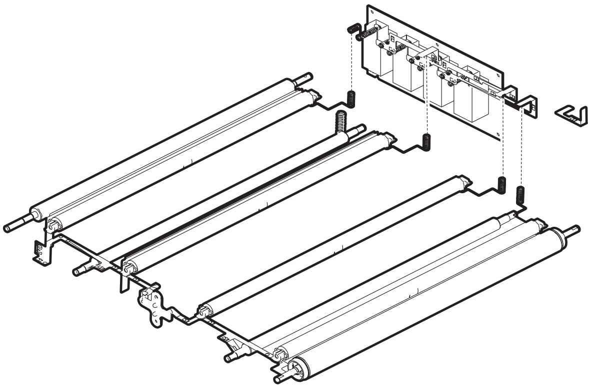
The transfer belt drive power is transmitted from the drive motor (BTM) to the transfer drive roller.

The motor (stepping motor) is driven by the drive signal sent from the PCU.

b. Applying a transfer high voltage to the transfer roller

According to the high voltage control signal from the PCU, the signal is converted into a transfer high voltage control signal with the HV (MC) PWB, and sent to the HV (TC) PWB.

According to each color transfer high voltage control signal, a high voltage is applied to each transfer roller from the transfer high voltage HV (TC) PWB through the connection spring to each transfer roller.



c. Process control sensor control

The process control shutter is provided on the process control sensor of monochrome (PCSK) and color (PCSC). When the shutter is open (in image density correction and automatic registration), the toner patch formed on the transfer belt is read by the process control sensor, and its information is sent to the PCU.

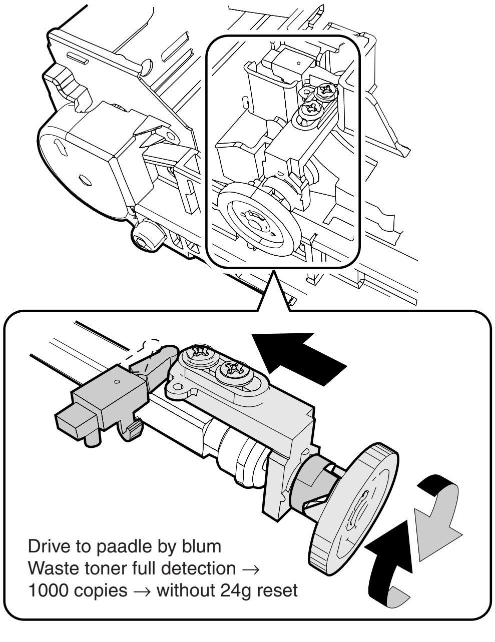
When the shutter is closed, the calibration sheet is read to perform calibration of the sensor itself.

The shutter operation is controlled by the calibration solenoid (CALS).

d. Belt waste toner full detection

Toner scraped by the belt cleaning blade is transported to the waste toner box by the belt waste toner transport shaft.

When the waste toner box is full, the rotation load of the waste toner transport shaft increases to turn on the waste toner full detection switch with the lever by the torque limiter function.



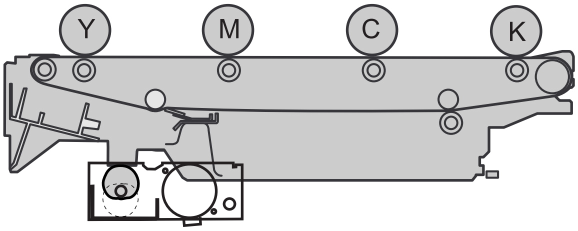
e. Transfer belt unit up and down

In color print, the transfer belt is in contact with four OPC drums. In black and white print, the transfer belt unit moves down so that only the black OPC drum is in contact with the transfer belt.

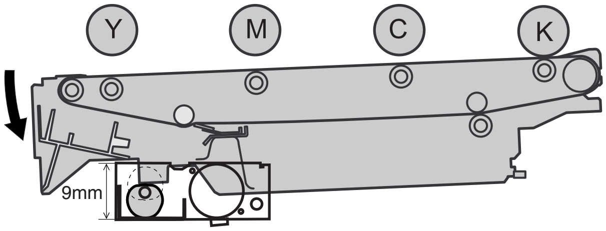
This up-and-down movement of the transfer belt is performed by the lift-up motor (BLUM), the lift-up cam, and the unit position sensor (BLUD).

When the left cabinet is opened for jam process, the rotating mechanism of the lift-up unit separates all four OPC drums from the transfer belt.

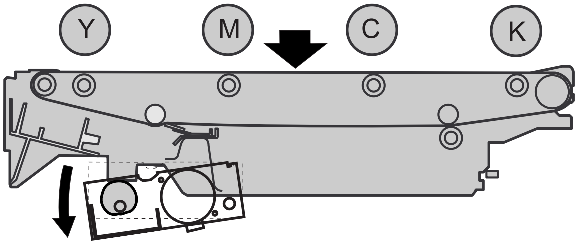
- Transfer belt position for color print
  The four OPC drums are in contact with the transfer belt by rotation of the cam in the transfer lift-up unit.



- Transfer belt position for black print
  Only the black OPC drum is in contact with the transfer belt by rotation of the cam in the transfer lift-up unit.



- Transfer belt position in jam process or replacement of the transfer belt
  When the left cabinet is opened, the transfer lift-up unit moves down, and the transfer unit moves by 9mm accordingly.

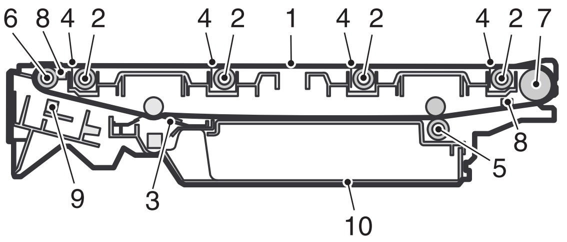


B. Disassembly/assembly/maintenance

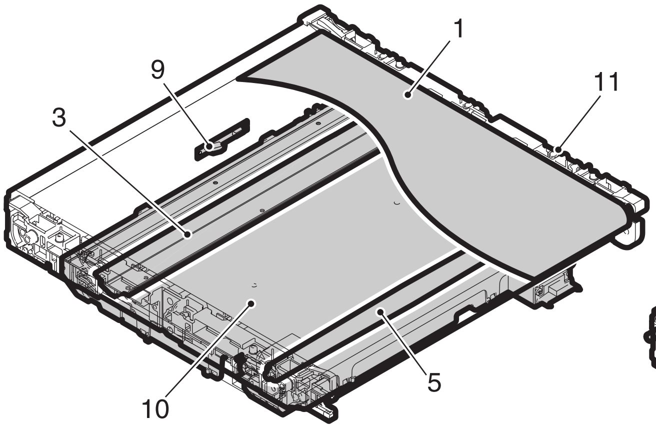
(1) Transfer section maintenance target parts

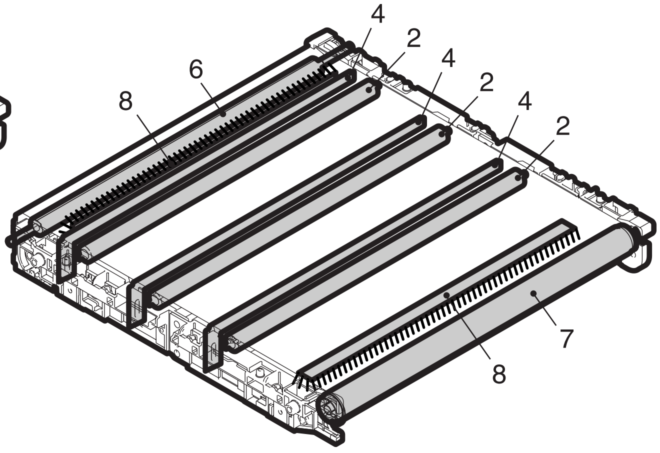
×: Check (Clean, replace, or adjust as necessary.) ❍: Clean ▲: Replace ∆: Adjust ☆: Lubricate ❏: Shift position

Unit name	No.	Part name	When calling	50K	100K	150K	200K	250K	300K	350K	400K	Remark
Transfer section	1	Transfer belt		×	▲	×	▲	×	▲	×	▲	Replace at 100K or within 2 years.
	2	Transfer roller		×	▲	×	▲	×	▲	×	▲	
	3	Transfer belt cleaning blade		×	▲	×	▲	×	▲	×	▲	Replace at 100K or within 2 years.
	4	Transfer discharge sheet		×	❍	×	❍	×	❍	×	❍	
	5	Transfer belt cleaning roller		×	▲	×	▲	×	▲	×	▲	
	6	Transfer drive roller		×	×	×	×	×	×	×	×	
	7	Transfer follower roller		×	×	×	×	×	×	×	×	
	8	Transfer discharge brush		×	×	×	×	×	×	×	×	
	9	Sensors		×	×	×	×	×	×	×	×	
	10	Waste toner tank unit	▲	×	▲	×	▲	×	▲	×	▲	When waste toner full is detected.
	11	Transfer belt unit		×	▲	×	▲	×	▲	×	▲	Replace the unit at 100K or within 2 years.



TX belt clean blade seals.

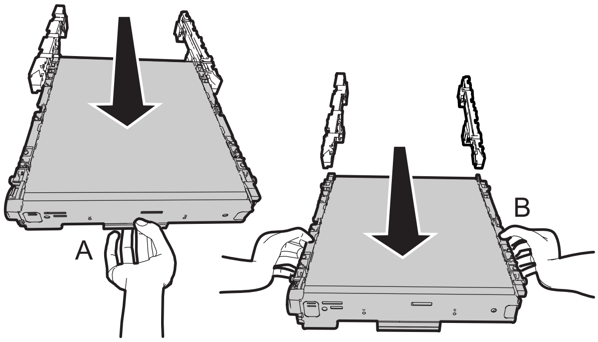




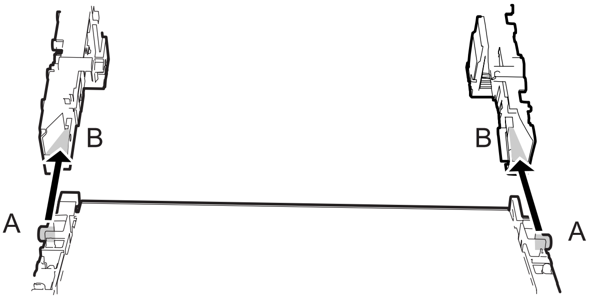
(2) Maintenance parts replacement procedure

a. Transfer unit removal

1) Open the left cabinet, and remove the fusing unit. (Refer to the section of the fusing unit.)
2) Hold section A of the transfer unit and pull it in the arrow direction so that you can hold both sides of the unit.
3) Hold both sides B and remove the transfer unit from the machine.

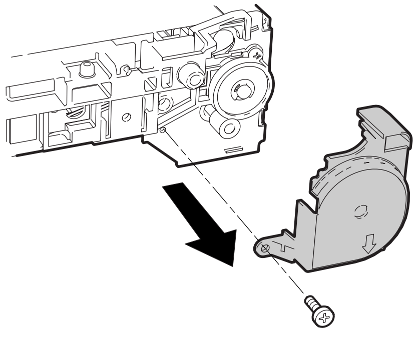


Note: Be careful not to scratch the surface of the transfer belt.

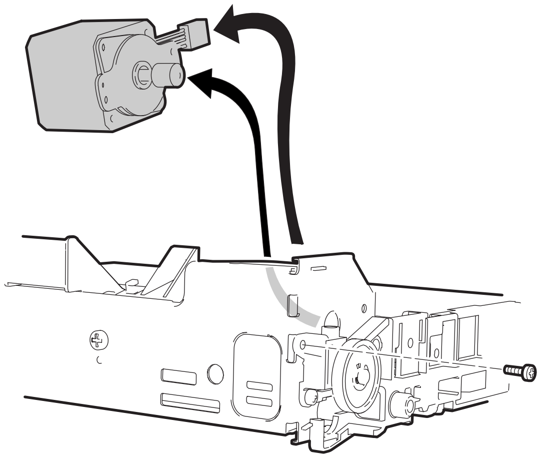


b. Belt drive motor

1) Remove the transfer unit from the machine.
2) Remove the screw, and remove the belt cover gear.

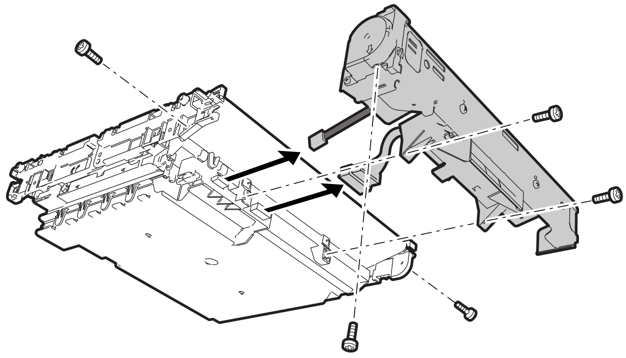


3) Remove the connector, the screw, and the motor.

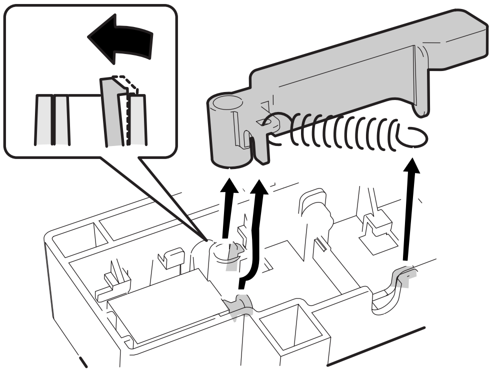


c. Process control sensor

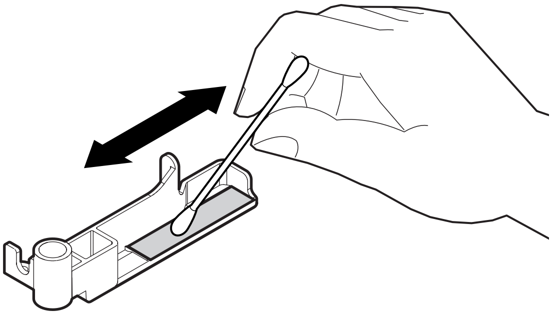
1) Remove the transfer unit from the machine.
2) Remove the connector and the screw, and remove the belt drive unit.



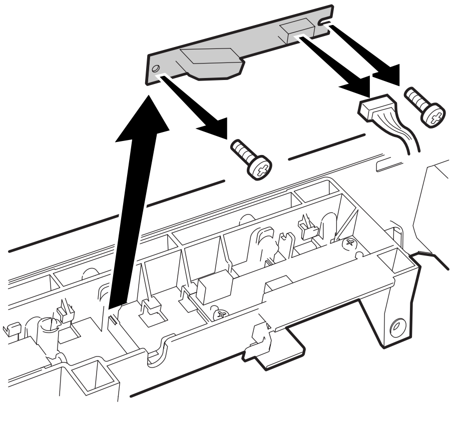
3) Remove the spring from the hook section.
4) Remove the hook, and remove the process control shutter.



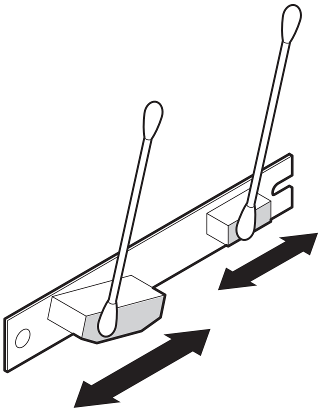
Cleaning: Clean the calibration sheet. (Wipe with soft, dry cloth.)



5) Remove the connector and the screws, and remove the process control sensor.

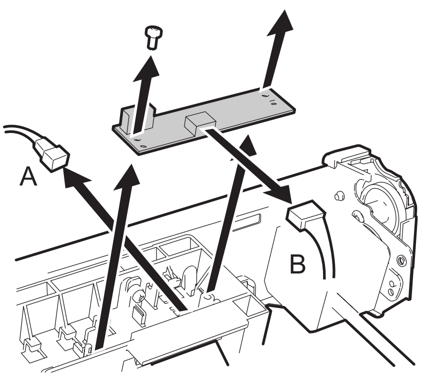


Cleaning: Clean the sensor surface.



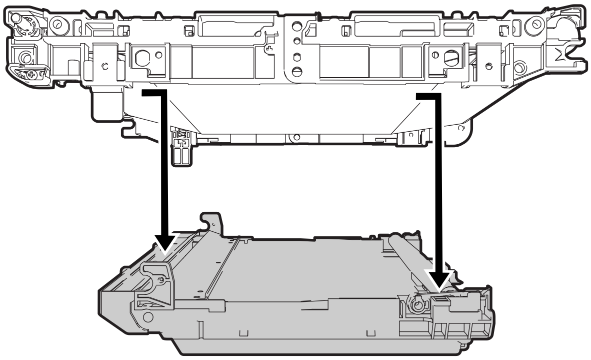
d. PWB

1) Remove the transfer unit from the machine.
2) Remove the connector and the screw, and remove the belt drive unit.
3) Remove the spring from the hook section.
4) Remove the process control shutter.
5) Remove the connector (A).
6) Remove the connector (B) and the screw, and remove the PWB.



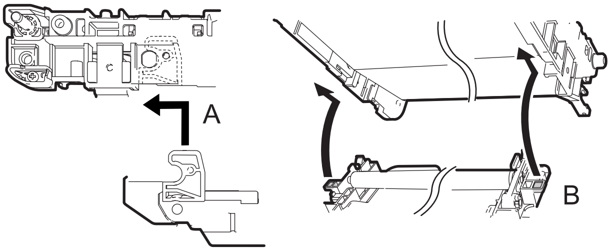
e. Waste toner tank unit

1) Remove the transfer unit from the machine.
2) Remove the connectors and the screws, and remove the belt drive unit.
3) Remove the waste toner tank unit.



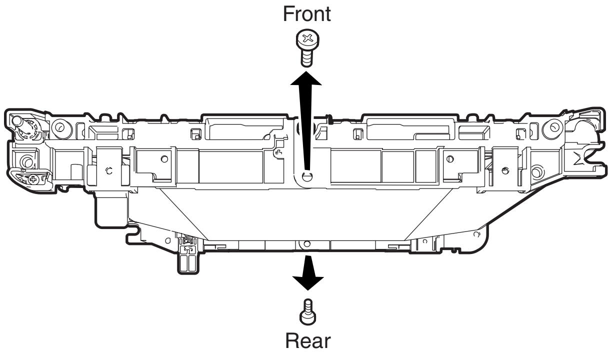
Note for assembly:

Insert the notches A and B of the waste toner tank unit into the positions in the transfer frame indicated in the figure below.



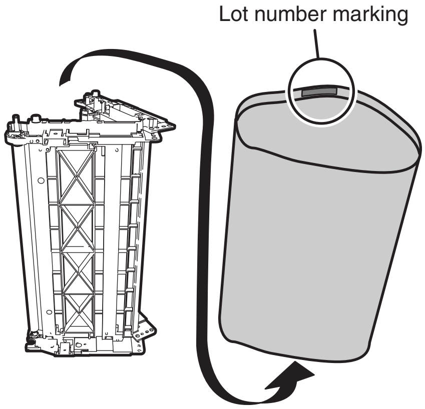
f. Transfer belt

1) Remove the transfer unit from the machine.
2) Remove the connector and the screw, and remove the belt drive unit.
3) Remove the lower screw.



Note: If the upper screw is removed and folded, the electrode is deformed. Therefore, be sure to remove the lower screw.

4) Fold the transfer belt housing and remove the transfer belt.

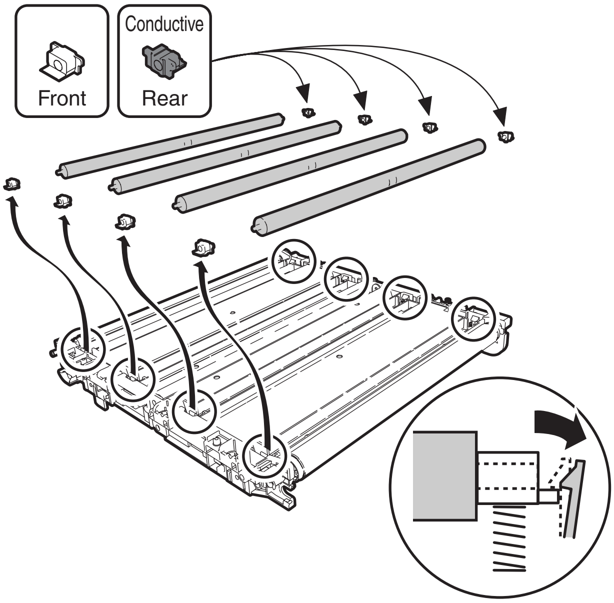


Note for installation:

When installing the transfer belt, be sure to place the lot number section marked inside the transfer belt on the front side.

g. Transfer roller

1) Remove the transfer unit from the machine.
2) Remove the connector and the screw, and remove the belt drive unit.
3) Remove the transfer belt.
4) Disengage the pawl, and remove the bearing and the transfer roller.

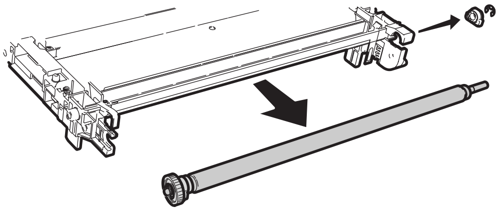


Note for assembly:

There are two different transfer roller bearings: black and white. The black bearing is conductive, and must be attached to the electrode side (rear frame side).

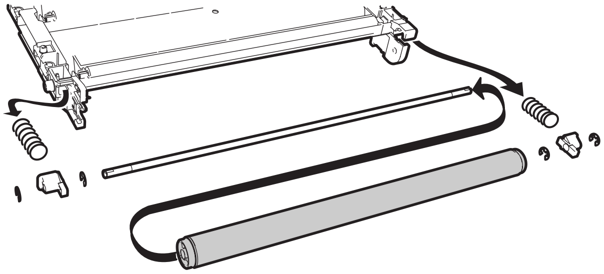
h. Transfer drive roller

1) Remove the transfer unit from the machine.
2) Remove the connector and the screw, and remove the belt drive unit.
3) Remove the transfer belt.
4) Remove the E-ring and the bearing, and remove the transfer drive roller.



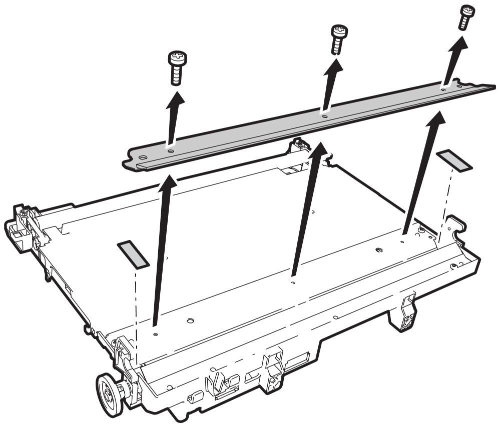
i. Transfer follower roller

1) Remove the transfer unit from the machine.
2) Remove the connector and the screw, and remove the belt drive unit.
3) Remove the transfer belt.
4) Remove the E-ring and the bearing, and remove the transfer follower roller.



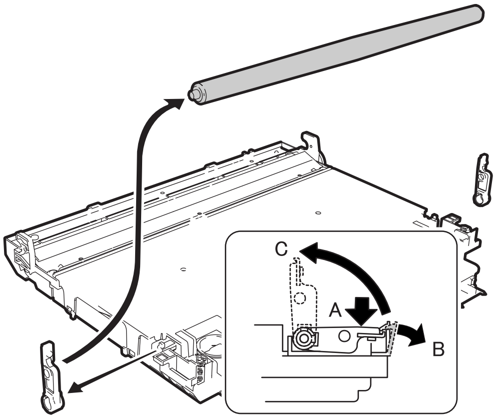
j. Transfer cleaning blade

1) Remove the transfer unit from the machine.
2) Remove the connector and the screw, and remove the belt drive unit.
3) Remove the waste toner tank unit.
4) Remove the screw, and remove the transfer cleaning blade.



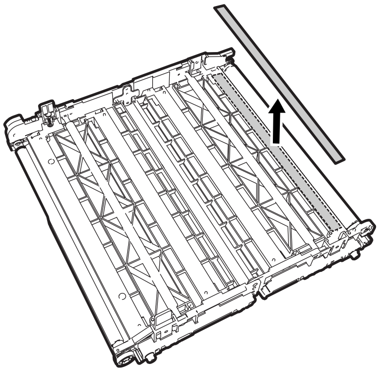
k. Transfer belt cleaning roller

1) Remove the transfer unit from the machine.
2) Remove the connector and the screw, and remove the belt drive unit.
3) Remove the waste toner tank unit.
4) Press the cleaning lever in the arrow direction A, extend the pawl in the arrow direction B, and pull up the cleaning lever in the arrow direction C.
5) Remove the transfer belt cleaning roller.



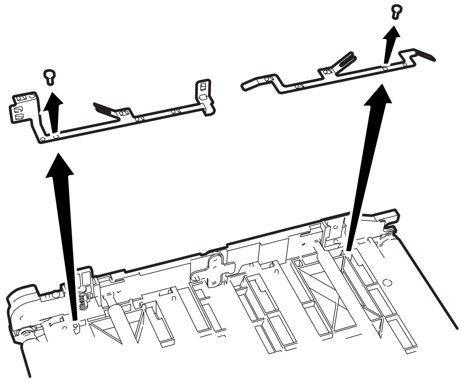
l. Belt cleaning brush

1) Remove the transfer unit from the machine.
2) Remove the connector and the screw, and remove the belt drive unit.
3) Remove the transfer belt.
4) Remove the Belt cleaning brush.

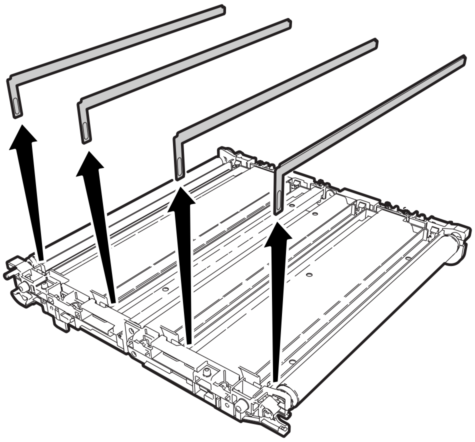


m. Transfer discharge sheets.

1) Remove the transfer unit from the machine.
2) Remove the connector and the screw, and remove the belt drive unit.
3) Remove the transfer belt.
4) Remove the terminals.

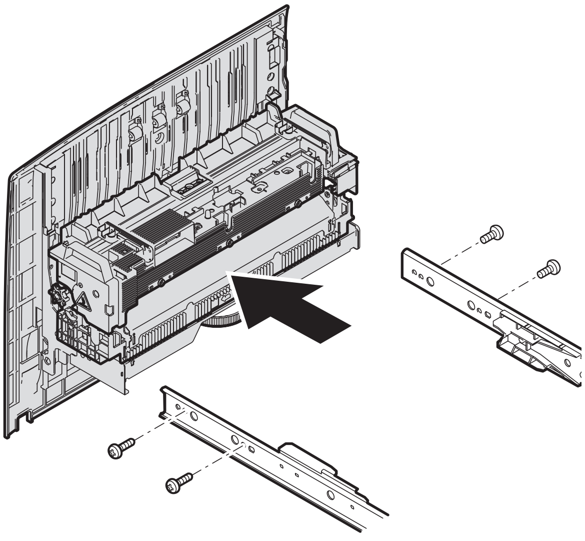


5) Remove the transfer discharge sheets.

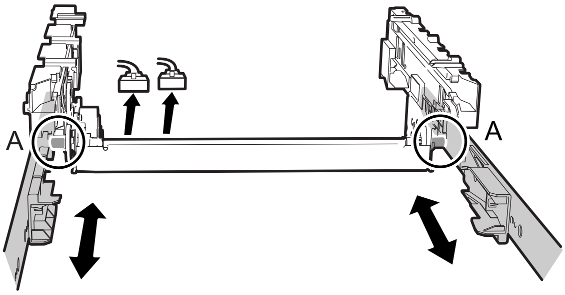


n. Transfer lift-up unit

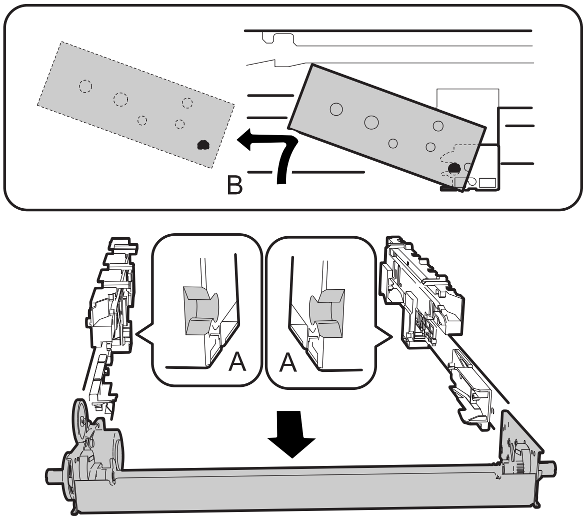
1) Remove the screw, and remove the left cabinet of the machine.



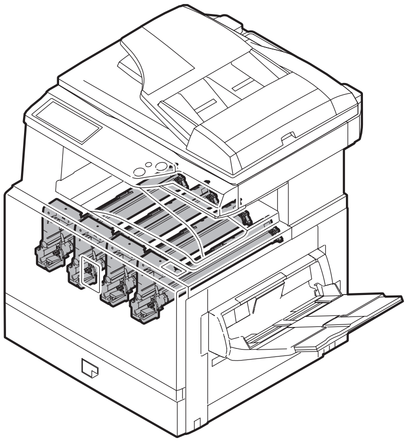
2) Remove the connector.
3) Adjust the rail positions so that section A does not make contact with the acuride section when the transfer lift-up unit is lifted up.

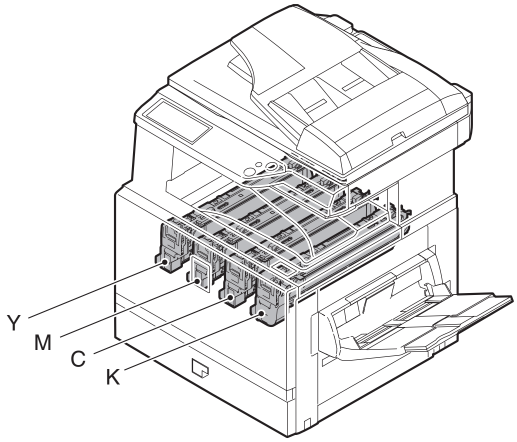


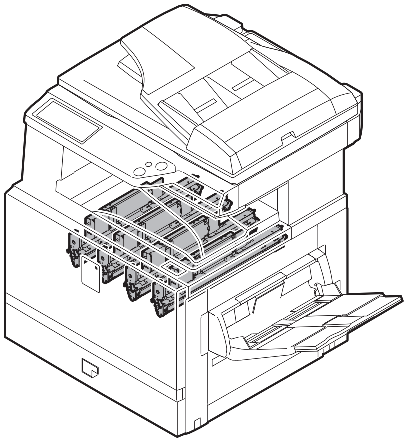
4) Lift the transfer lift-up unit in the arrow direction B with section A as the fulcrum, and remove it.



3. Process (image forming) section







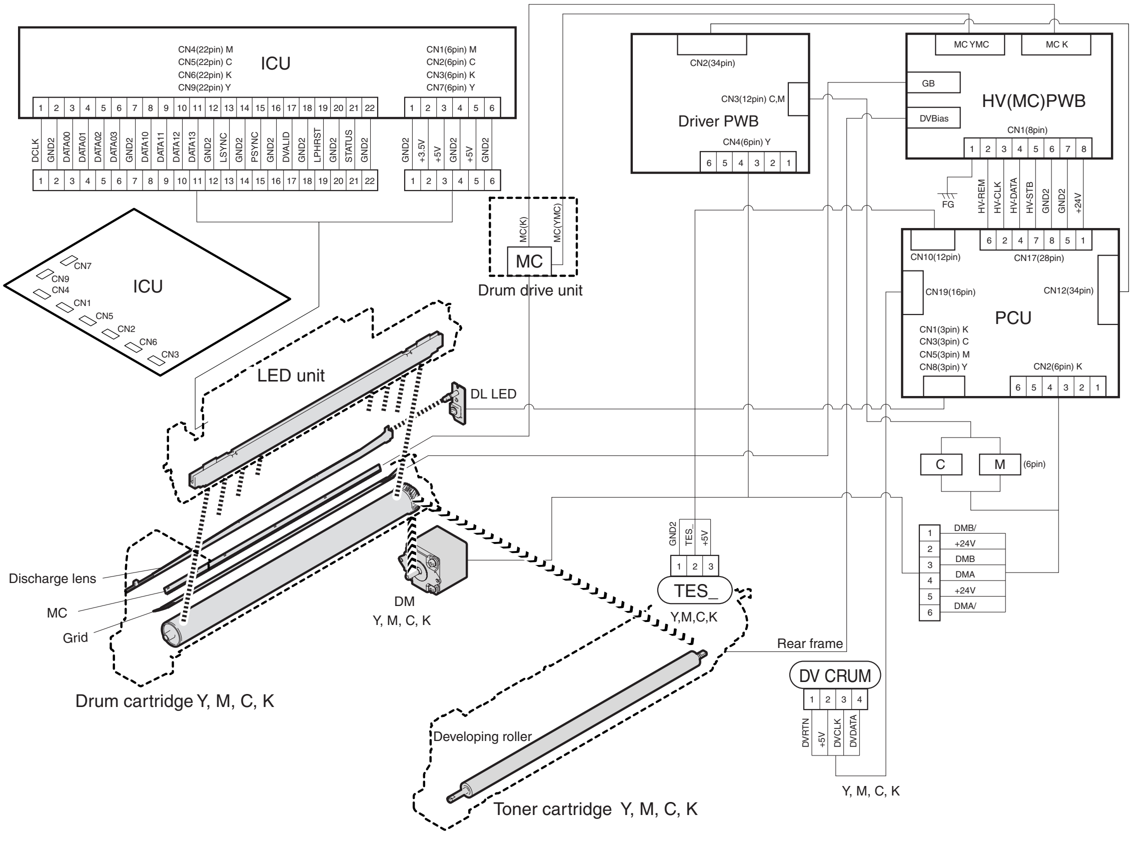
A. Operational descriptions

(1) Outline

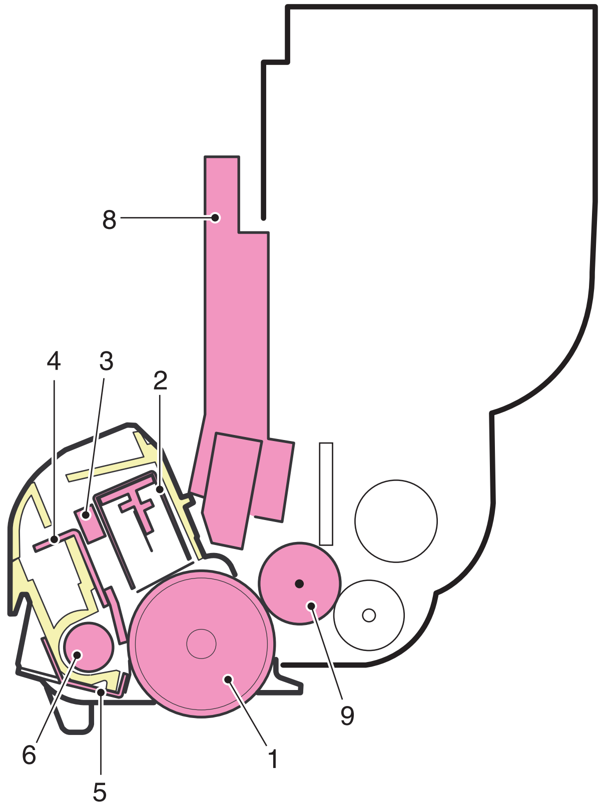
This section functions and operates as follows:

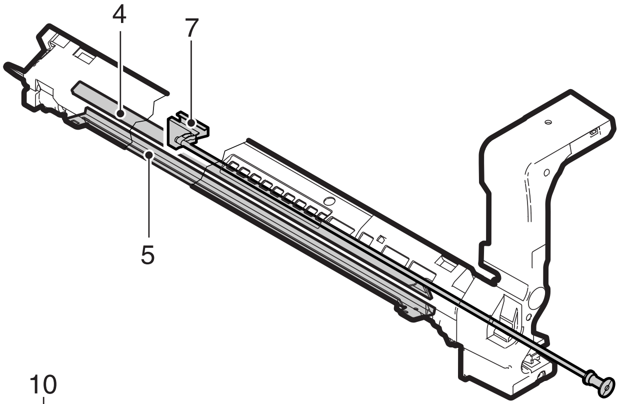
1) In this section, the LED is lighted according to the data sent from the image process section to form electrostatic latent images on the OPC drums which are charged evenly by the main charger, and toner is attached to the electrostatic latent images.

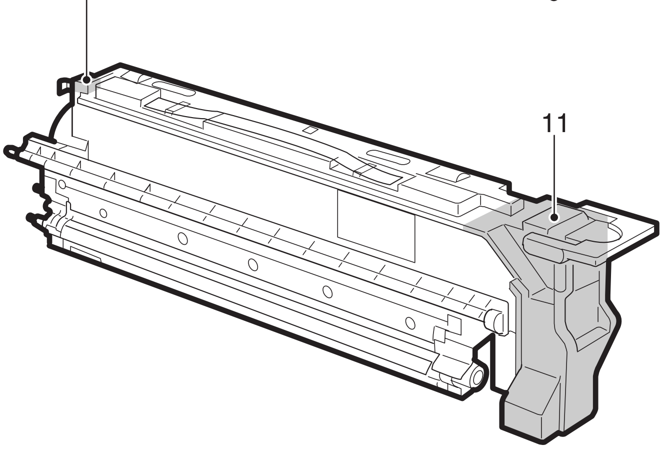
(2) Electrical and mechanical sections


ICU
CN4(22pin) M
CN5(22pin) C
CN6(22pin) K
CN9(22pin) Y
CN1(6pin) M
CN2(6pin) C
CN3(6pin) K
CN7(6pin) Y
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22
DCLK GND2 DATA00 DATA01 DATA02 DATA03 GND2 DATA10 DATA11 DATA12 DATA13 GND2 LSYNC GND2 PSYNC GND2 DVALID GND2 LPHRST GND2 STATUS GND2
1 2 3 4 5 6
GND2 +3.5V +5V GND2 +5V GND2
ICU
CN7
CN9
CN4
CN1
CN5
CN2
CN6
CN3
MC(K)
MC(YMC)
MC
Drum drive unit
Driver PWB
CN2(34pin)
CN3(12pin) C,M
CN4(6pin) Y
6 5 4 3 2 1
HV(MC)PWB
MC YMC
MC K
GB
DVBias
CN1(8pin)
1 2 3 4 5 6 7 8
FG
HV-REM HV-CLK HV-DATA HV-STB GND2 GND2 +24V
PCU
6 2 4 7 8 5 1
CN10(12pin)
CN17(28pin)
CN19(16pin)
CN12(34pin)
CN1(3pin) K
CN3(3pin) C
CN5(3pin) M
CN8(3pin) Y
CN2(6pin) K
6 5 4 3 2 1
C
M
(6pin)
1 DMB/
2 +24V
3 DMB
4 DMA
5 +24V
6 DMA/
LED unit
DL LED
Discharge lens
MC
Grid
Drum cartridge Y, M, C, K
DM
Y, M, C, K
GND2 TES_ +5V
1 2 3
TES_
Y,M,C,K
Rear frame
DV CRUM
1 2 3 4
DVRTN +5V DVCLK DVDATA
Y, M, C, K
Developing roller
Toner cartridge Y, M, C, K

(3) Major parts/signals functions and operations







No.	Name	Code, Signal name	Function
1	OPC drum (YMCK)	—	Forms electrostatic latent images.
2	Main charger (YMCK)	MC	Charges the OPC drum surface negatively.
3	Discharge lens	—	Discharges the OPC drum surface.
4	Cleaning blade	—	Cleans the OPC drum surface to remove residual toner.
5	Toner reception seal	—	Seals to prevent against toner leakage.
6	Waste toner transport screw	—	Transports toner scraped by the cleaning blade to the waste toner box of the toner cartridge.
7	MC cleaner	—	Cleans the MC (charging plate).
8	LED unit	—	Converts image signals into LED light and radiates it onto the OPC drum.
9	Developing roller	—	Attaches toner to the OPC drum. (Do not touch the developing roller.)
10	DV CRUM (Y, M, C, K)	—	Memory for toner cartridge data (counter, etc.)
11	Waste toner box	—	Collects waste toner transported from the drum cartridge.
RW	Grid biks	GB	Controls the drum surface potential.
RW	Discharge lamp	DL	Radiates lights onto the discharge lens.
RW	Drum motor A, A', B, B'	DM A, A', B, B'	Drives the OPC drum.
RW	Toner empty sensor	TES	Detects the toner quantity in the toner cartridge.

RW: Abbreviation of Related Wiring, which means the said load is specified in the related figure of the mechanical and the electrical sections.

(4) Operational descriptions

a. Drum cartridge and toner cartridge drive

The drive power for the drum cartridges are transmitted from the drive motor (DM) to the drum gears.

The toner cartridge is driven through the drum gear and the connection gear.

The motor (stepping motor) for black is driven by the drive signal sent directly from the PCU, and the motors color are driven by the drive signals sent from the PCU through the driver PWB.

b. LED (writing) unit

Four LED (writing) units are provided for each of Yellow, Magenta, Cyan, and Black.

Each LED (writing) unit converts YMCK dot image data outputted from the ICU PWB into LED light, and radiate the light onto the OPC drum, forming electrostatic latent images on the OPC drum.

Since the position of each LED unit of CMYK is shifted in the paper transport direction, the above operation depends on the relative position and differs in the operating timing.

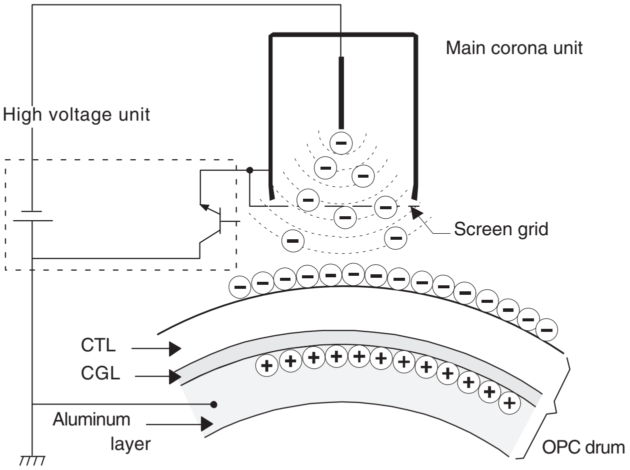
- LED unit composition

Item		Content
Print width		314mm
Total number of dots		7424 dot
Resolution		600dpi
LED composition	Number of LED chips	58 chip
	Number of dots	128 dot
Lens		Selfoc lens

c. OPC drum section operations

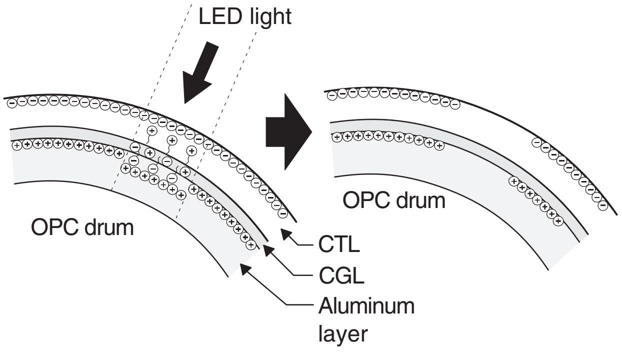
The OPC drum surface is charged negatively by the main charger, and LED light of images are radiated onto the OPC drum surface by the LED (writing) unit to form electrostatic latent images.

1) The OPC drum surface is negatively charged by the main charger.



The screen grid is attached to the main charger unit. The OPC drum is charged at a voltage nearly same as the voltage applied to the screen grid.

2) LED light is radiated onto the OPC drum surface by the LED (writing) unit to form electrostatic latent images.



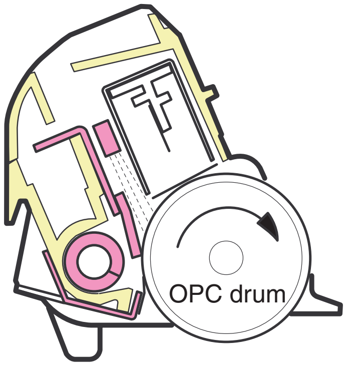
When LED light is radiated onto the OPC drum CGL, positive and negative charges are generated. Positive charges generated in the CGL are attracted and moved by negative charges of the OPC drum, and negative charges by positive charges of the aluminum layer of the OPC drum. Therefore, on the OPC drum surface and in the aluminum layer, positive and negative charges are neutralized, reducing the OPC drum surface potential.

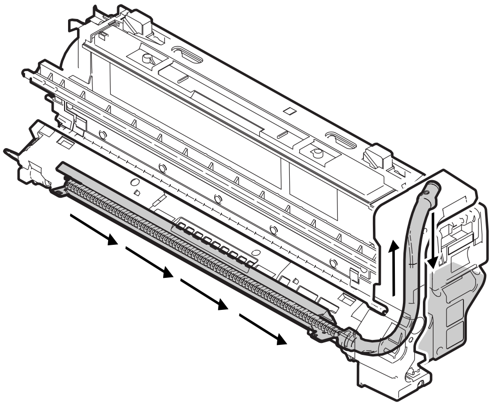
Electric charges remain in the areas where LED light is not radiated onto the OPC drum.

As a result, electrostatic latent images are formed on the OPC drum surface.

Charges are disposed in direct proportion to the amount of light received.

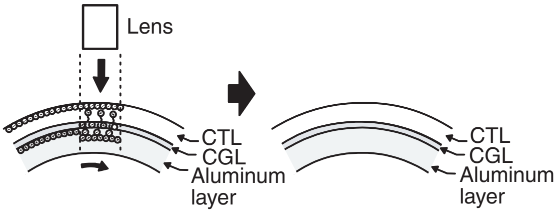
3) Clean and remove residual toner from the OPC drum with the cleaning blade after transfer operations.





Removed residual toner is transported to the waste toner section of the toner cartridge by the waste toner transport screw.

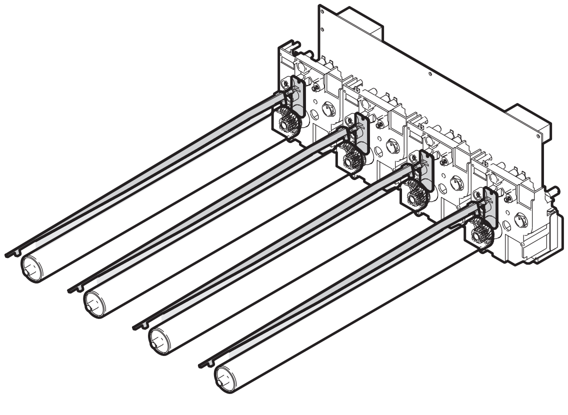
4) The whole surface of the OPC drum is discharged.



By radiating discharge lamp light onto the discharge lens, light is radiated through the discharge lens to the OPC drum surface.

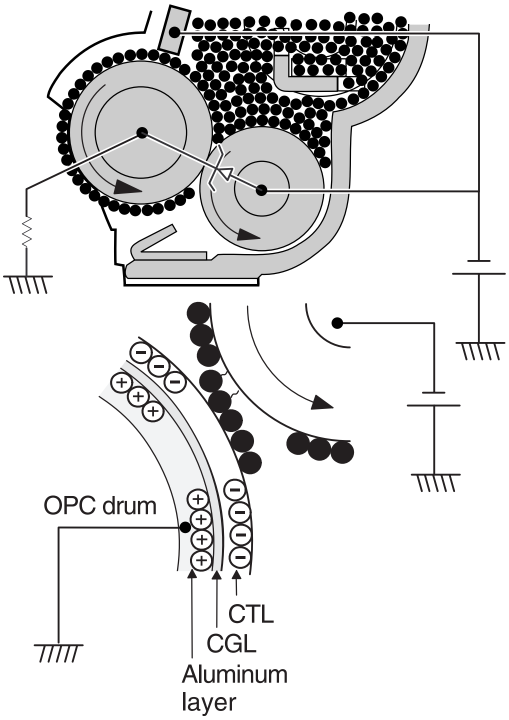
When discharge lamp light is radiated onto the OPC drum CGL, positive and negative charges are generated.

Positive charges generated in the CGL are attracted and moved by negative charges of the OPC drum, and negative charges by positive charges of the aluminum layer of the OPC drum. Therefore, on the OPC drum surface and in the aluminum layer, positive and negative charges are neutralized, reducing the OPC drum surface potential, preparing the drum surface for the new copy cycle.



d. Developing section (composed of four units of YMCK) operations

Electrostatic latent images generated on the OPC drum by the LED (writing) units are converted into visible images by toner.



Toner in the developing unit is agitated by the mixing roller.

By mixing operation, toner is negatively charged due to mechanical friction.

The developing bias voltage (negative) is applied to the developing roller.

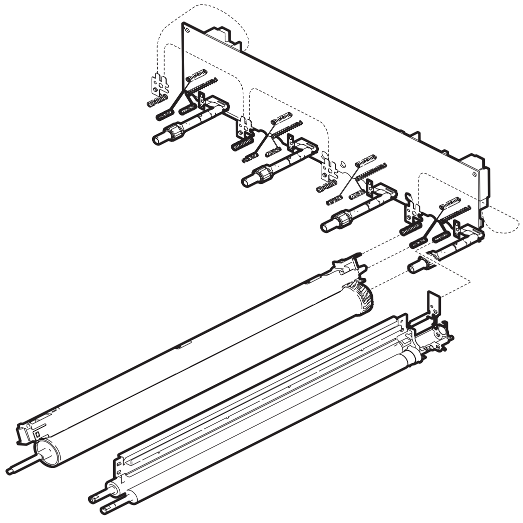
The difference for the voltage potential between the toner and DV roller surface attracts the toner to the DV roller.

In the areas of the OPC drum, when the charge was detected, the voltage potential difference is greater than the DV roller. Therefore the toner is attracted from the DV roller to the drum.

In the unexposed areas of the drum, the potential on the DV roller created by the bias voltage and therefore the toner to not attracted to those areas of the drum.

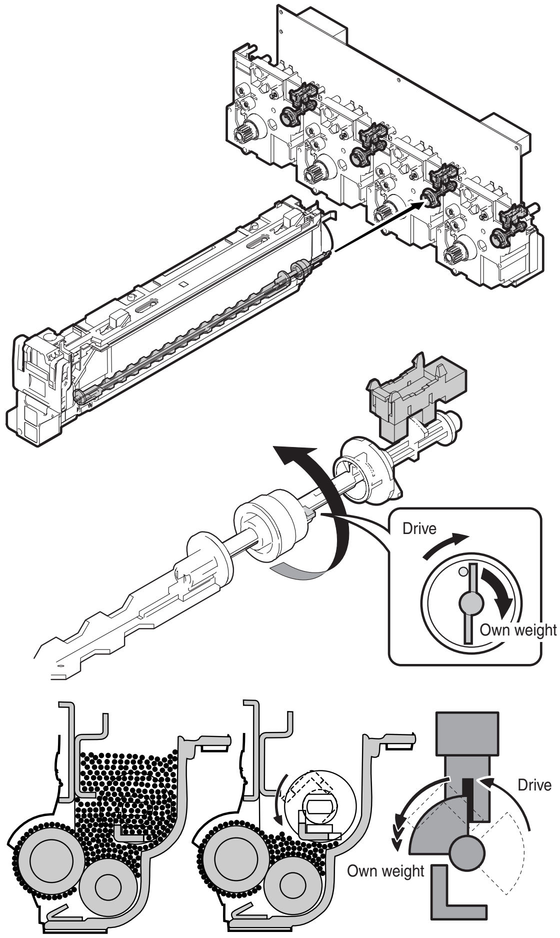
Negatively charged toner is attracted and attached to the exposed area on the OPC drum surface where the negative potential was reduced by LED exposure.

On the other hand, in the areas on the OPC drum where exposure was not made, the positive potential is higher than the developing bias voltage, repelling toner.



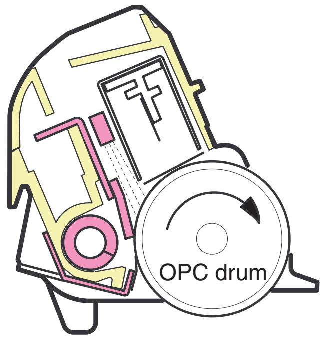
<1> Remaining toner quantity detection

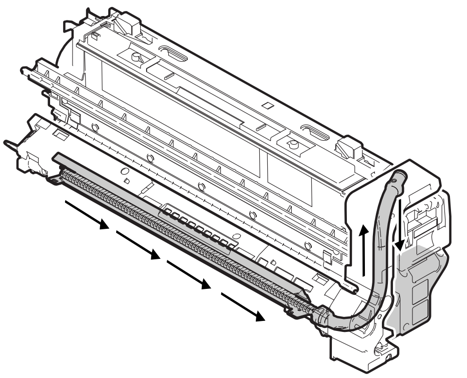
Rotation of the detection lever connected to the mixing roller is sensed by the sensor (TES) to detect the remaining toner quantity.



<2> Waste toner collection

Waste toner collected by the drum cleaning blade is transported to the waste toner box of the toner cartridge by the toner transport spring in the drum unit.





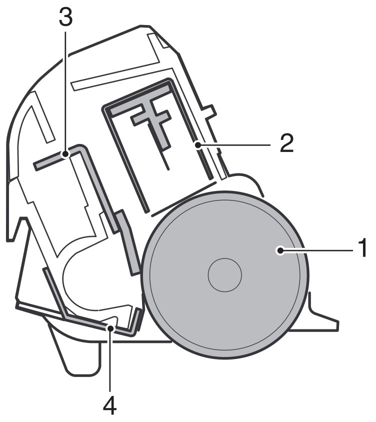
B. Disassembly/assembly/maintenance

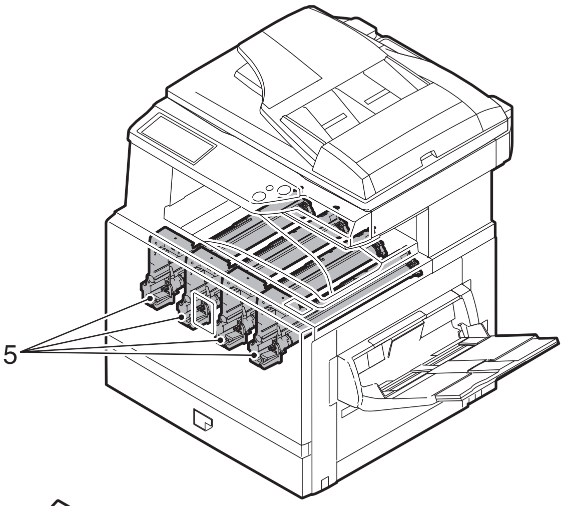
(1) Process section maintenance target parts

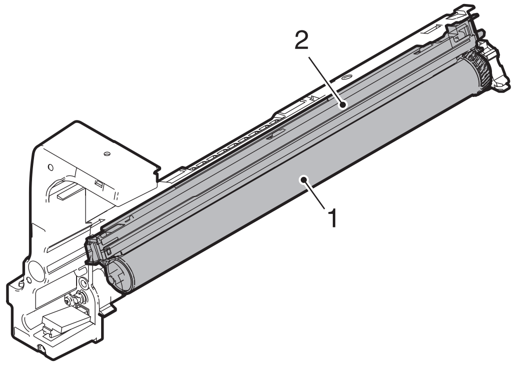
×: Check (Clean, replace, or adjust as necessary.) ❍: Clean ▲: Replace ∆: Adjust ☆: Lubricate ❏: Shift position

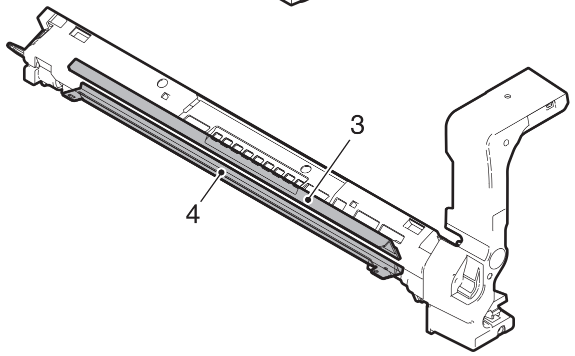
Unit name	No.	Part name	When calling	50K	100K	150K	200K	250K	300K	350K	400K	Remark
Drum module	1	Drum (Black/color)		▲	▲	▲	▲	▲	▲	▲	▲	
	2	Charging unit		▲	▲	▲	▲	▲	▲	▲	▲	
	3	Cleaner blade		▲	▲	▲	▲	▲	▲	▲	▲	
	4	Toner reception seal		▲	▲	▲	▲	▲	▲	▲	▲	
	5	Drum cartridge		▲	▲	▲	▲	▲	▲	▲	▲	When replacing the unit
Developing section (integrated with toner cartridge)	6	Toner cartridge	Replaced by user when toner empty (or at the specified distance covered)									
LED	7	LED lens	❍	❍	❍	❍	❍	❍	❍	❍	❍	

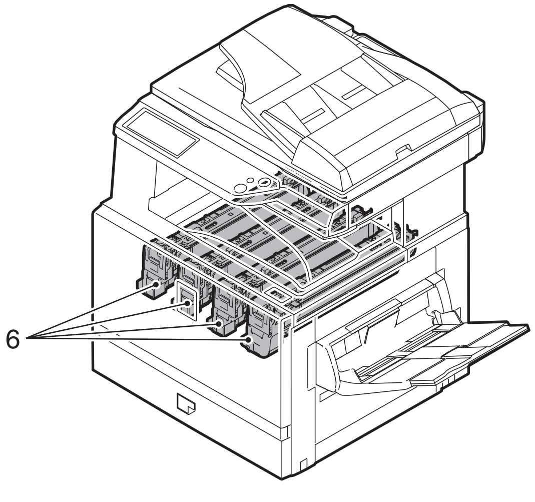
Note: When replacing the OPC drum, execute SIM 25-1 for 2 minutes. (This simulation is executed in order to avoid generation of stripes on a half-tone print image.)

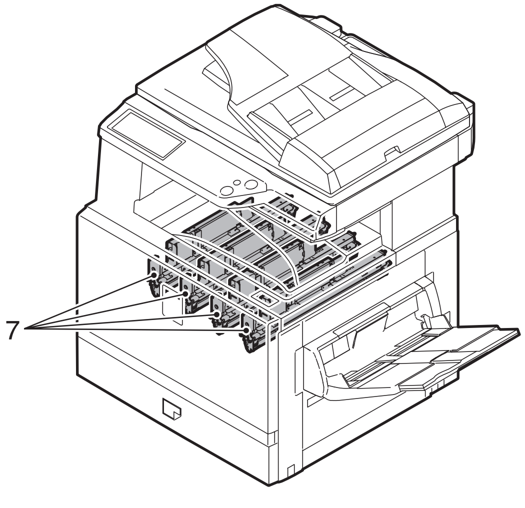








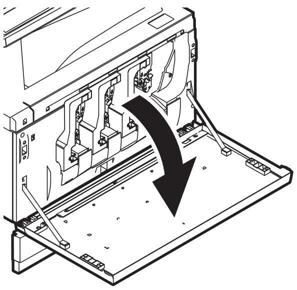




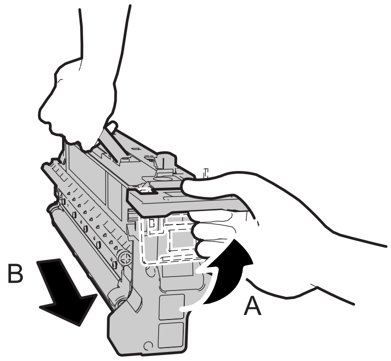
(2) Maintenance parts/major parts replacement

a. Developing unit removal

1) Open the front cabinet.

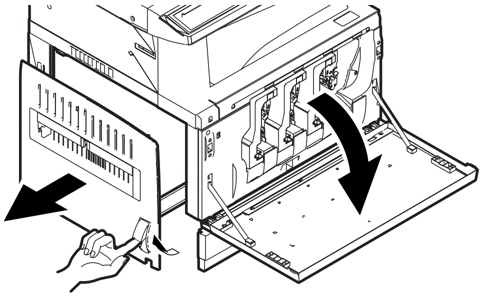


2) Lift the lever in the arrow direction A, and remove the developing unit in the arrow direction B.

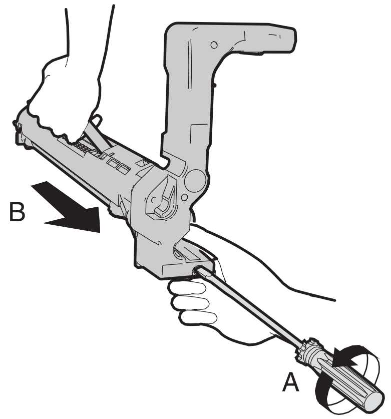


b. Drum unit removal

1) Open the front cabinet and left cabinet.



2) Turn the fixing screw in the arrow direction A to release it, and remove the drum unit in the arrow direction B.

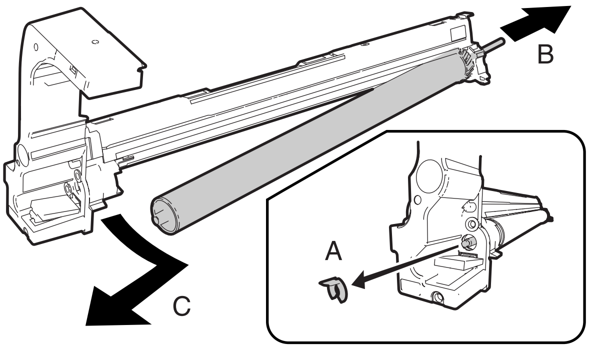


Note: Be sure to open the left cabinet before releasing the fixing screw.
If the fixing screw is released before opening the left cabinet, the lock cannot be released.

In that case, push the drum unit to the rear frame side and release the lock, and remove the drum unit.

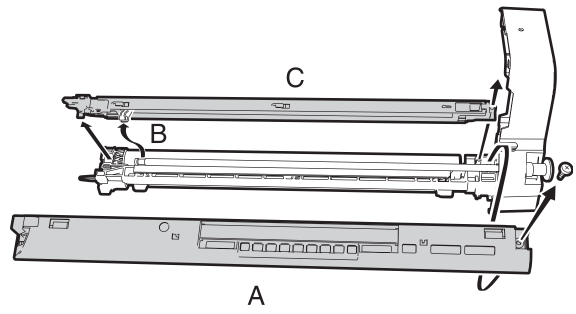
c. Drum removal

1) Remove the drum unit.
2) Remove the retaining clip from the drum shaft (A).
3) Slide the drum shaft in the arrow direction B.
4) Remove the drum in the arrow direction C.



d. Charging unit

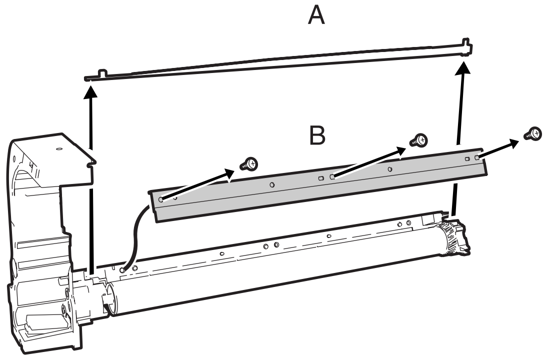
1) Remove the drum unit.
2) Remove the screw and remove the cover (A).
3) Remove the MC unit from the MC cleaning shaft.
4) Remove the charging unit (C).



* When assembling, attach the drum, then attach the charging unit. (This is to prevent against dirt by starting powder applied to the drum.)

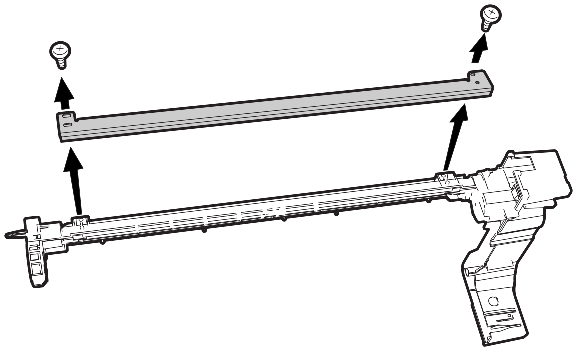
e. Cleaner blade

1) Remove the drum unit.
2) Remove the charging unit.
3) Remove (A).
4) Remove the screw, and remove the cleaner blade.



f. Toner reception seal

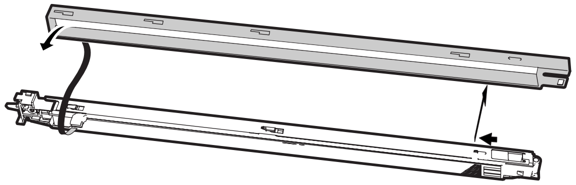
1) Remove the drum unit.
2) Remove the drum.
3) Remove the screw, and remove the toner reception seal.



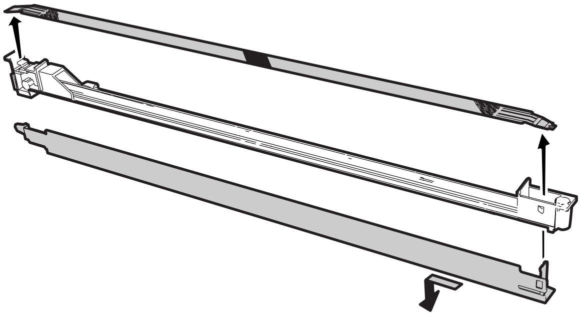
Note: Do not deform the seal.

g. MC cleaner

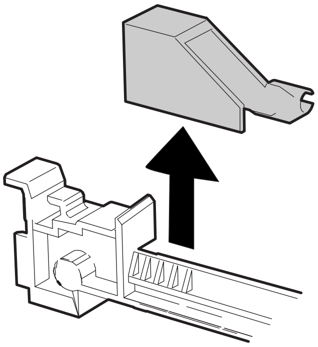
1) Remove the drum unit.
2) Remove the screw, and remove cover (A).
3) Remove the MC unit.
4) Release the pawl, and remove the MC case upper in the arrow direction.



5) Release the pawl, and remove the MC case lower in the arrow direction.
6) Remove the screen grid.

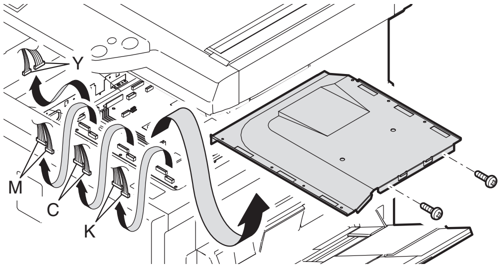


7) Disengage the pawl, and remove the MC cleaner.

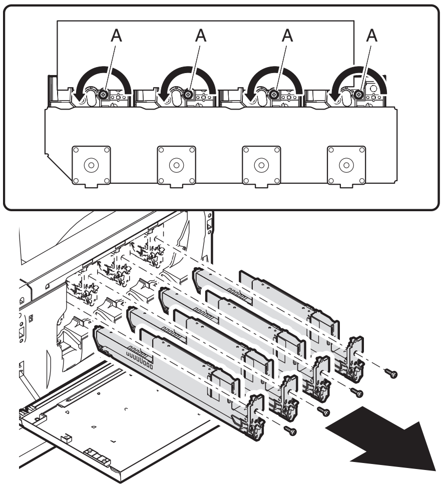


h. LED unit removal

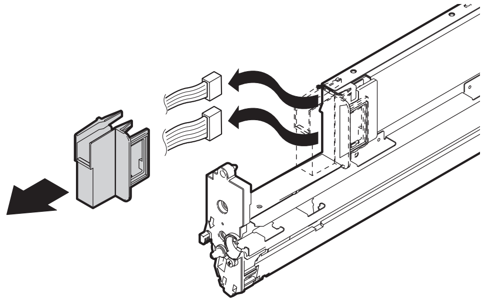
1) Remove the rear cabinet.
2) Remove the PCU PWB unit.
3) Remove the developing unit.
4) Remove the drum unit.
5) Remove the top cover, and disconnect the connector of the ICU.



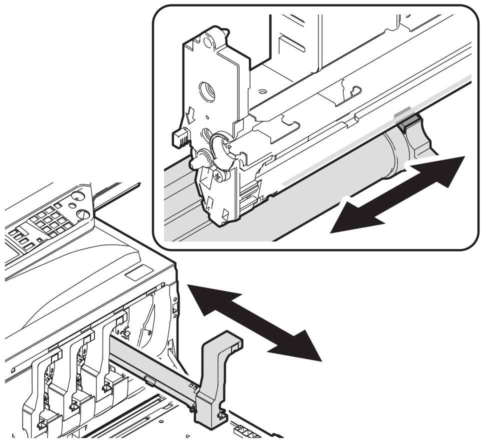
6) Remove the screw (A) on the rear side, and remove the LED unit.



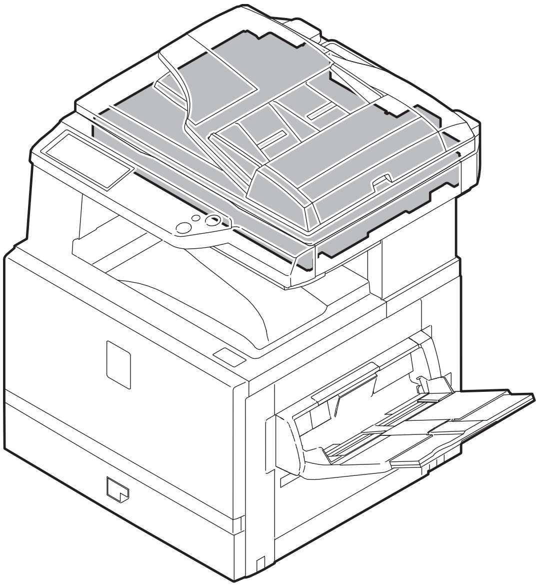
7) Remove the LED unit.
8) Remove the connector cover and the harness.



i. LED lens cleaning



4. Optical section (Scanner section)



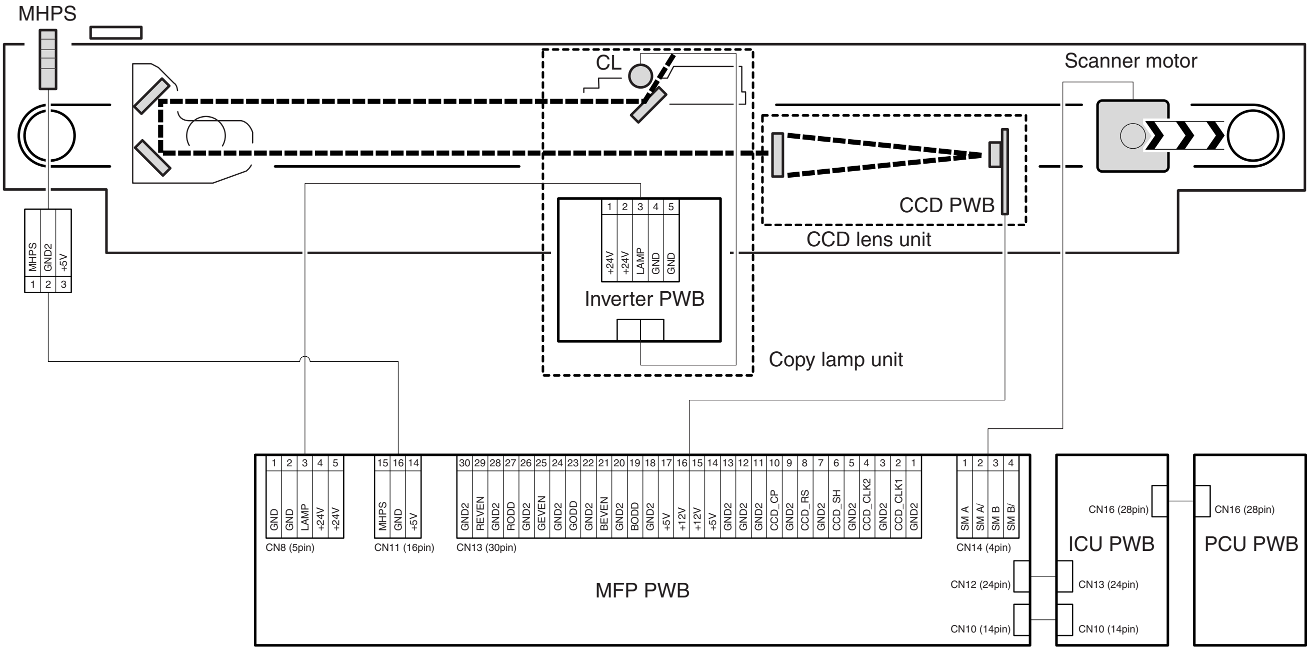
A. Operational descriptions

(1) Outline

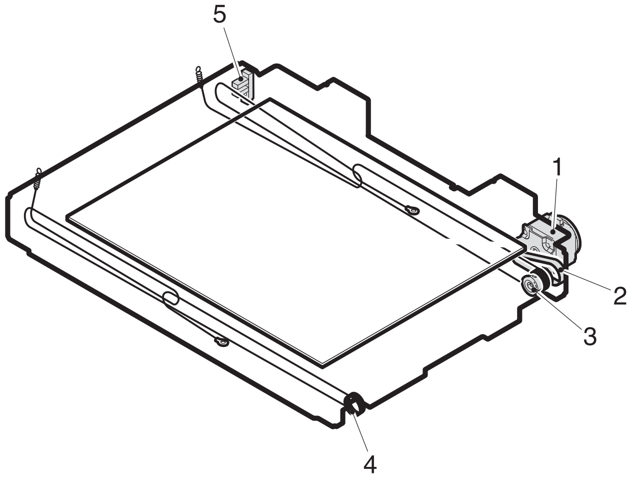
This section functions and operates as follows:

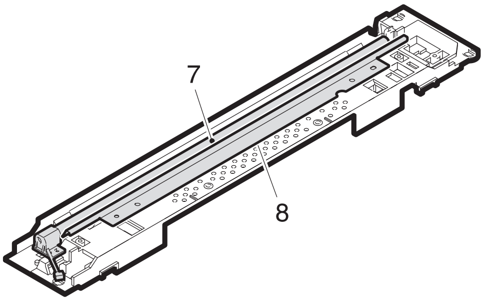
1) The copy lamp radiates light onto the document, and the reflected light is scanned by the three line (RGB) CCD element and then converted into image signals (analog).
2) The image signals (analog) are converted into 8bit digital signals by the A/D converter.
3) The image signals (digital) are sent to the image process section (ICU PWB).

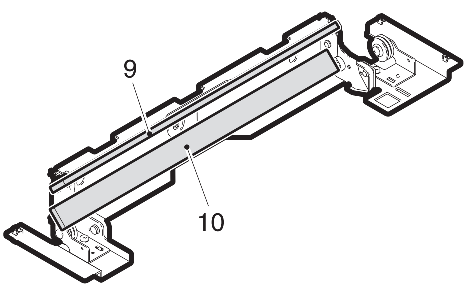
(2) Electrical section and mechanical section

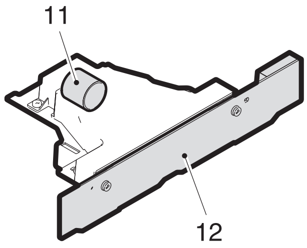

MHPS
CL
Scanner motor
CCD PWB
CCD lens unit
Copy lamp unit
Inverter PWB
1 2 3 4 5
+24V +24V LAMP GND GND
MHPS GND2 +5V
1 2 3
MFP PWB
CN8 (5pin)
1 2 3 4 5
GND GND LAMP +24V +24V
CN11 (16pin)
15 16 14
MHPS GND +5V
CN13 (30pin)
30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
GND2 REVEN GND2 RODD GND2 GEVEN GND2 GODD GND2 BEVEN GND2 BODD GND2 +5V +12V +12V +5V GND2 GND2 GND2 CCD_CP GND2 CCD_RS GND2 CCD_SH GND2 CCD_CLK2 GND2 CCD_CLK1 GND2
CN14 (4pin)
1 2 3 4
SM A SM A/ SM B SM B/
CN12 (24pin)
CN10 (14pin)
ICU PWB
CN16 (28pin)
CN13 (24pin)
CN10 (14pin)
PCU PWB
CN16 (28pin)

(3) Major parts and signals functions and operations









No.	Name	Code, Signal name	Function
1	Scanner motor	SM	Drives the copy lamp unit and the mirror base unit.
2	Pulley belt	—	Transmits drive power of the scanner motor to the pulley.
3	Pulley	—	Drives the scanner drive wire.
4	Scanner drive wire	—	Transmits drive power of the scanner motor to the copy lamp unit and the mirror base unit.
5	Scanner unit home position sensor	MHPS	Detects the home position of the copy lamp unit.
7	Copy lamp	CL	Radiates light onto documents. (Xenon lamp)
8	Reflector	—	Converges light from the copy lamp.
9	No. 2 mirror	—	Sends document images to No. 3 mirror.
10	No. 3 mirror	—	Sends document images to the lens.
11	Lens	—	Reduces document images (photo images) and projects them to the CCD.
12	CCD PWB	—	Receives the document image (photo signals) and converts them into electrical signals.
RW	Inverter PWB	LAMP	Drives the copy lamp (Xenon lamp).
RW	Scanner motor drive	SM A, A’, R, B’	
RW	MHPS	MHPS	Scanner home position detect jam

RW: Abbreviation of Related Wiring, which means the said load is specified in the related figure of the mechanical and the electrical sections.

(4) Operational descriptions

a. Optical section drive

The optical section drive power is transmitted from the drive motor (SM) through the belt, the drive pulley, and the wire to drive the copy lamp unit and the mirror base which are attached by the drive wires.

The drive motor (stepping motor) is controlled by the drive signal sent from the MFP PWB.

b. Copy lamp drive

The copy lamp is driven by the copy lamp drive voltage generated in the inverter PWB according to the control signal sent from the MFP PWB.

c. Image scan/color separation

The CCD element, appeared as one unit, but has three separate rows of CCD elements drive each for (RGB).

Light is radiated to a document by the copy lamp (Xenon lamp), and the brightness of the reflected light is received by the three line (RGB) CCD element and converted into (analog) image signals.

Each color component of RGB is separately extracted from the document image by the three lines (RGB) of the CCD elements.

The red CCD extracts the red components from the document image, the green CCD the green components, and the blue CCD the blue components. This operation is called Color Separation.

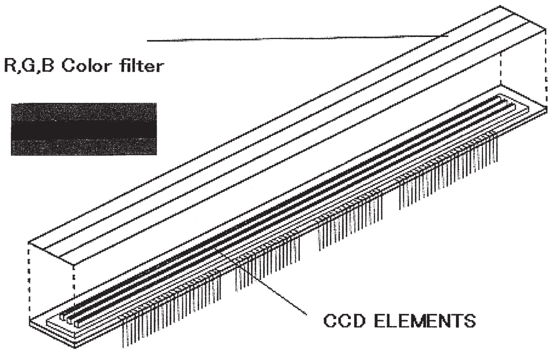
The CCD element, appeared as one unit, but has three separate rows of CCD elements drive each for (RGB).

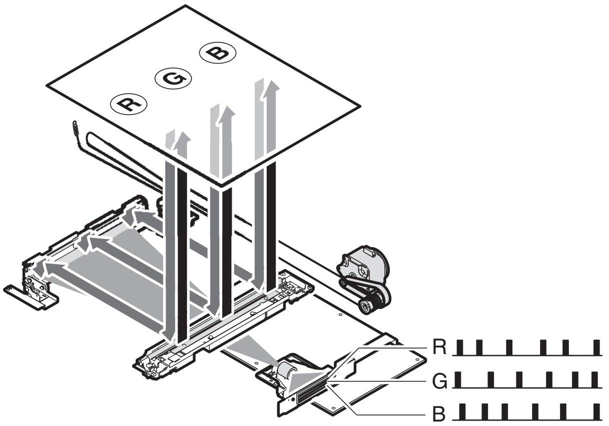
Scanning of a document in the main scanning direction is performed by the CCD elements. Scanning of a document in the sub scanning direction is performed by shifting the scanner unit position with the scanner motor.

Document images are optically reduced by the lens and projected to the CCD elements.

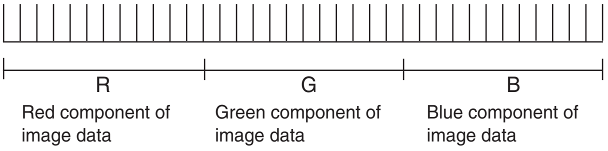
The scanning resolution is 600dpi × 600dpi.

3 LINES CCD UNIT



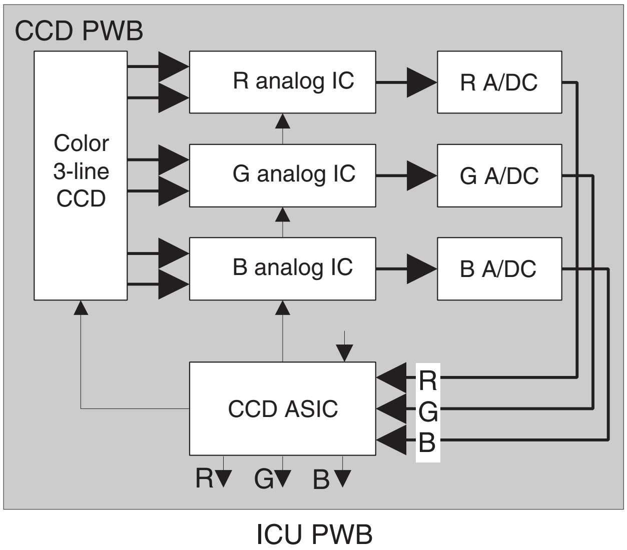


(Image data for one line)


R
G
B
Red component of image data
Green component of image data
Blue component of image data

d. Image signal A/D conversion

1) Each image signal (analog) of RGB is converted into 8bit digital signal by the A/D converter. Each color pixel has 8bit information (256 gradations).
2) Each 8bit digital image signal of RGB is sent to the image process section.



e. Zooming operation

Zooming in the sub scanning direction is performed by changing the scanning speed in the sub scanning direction.

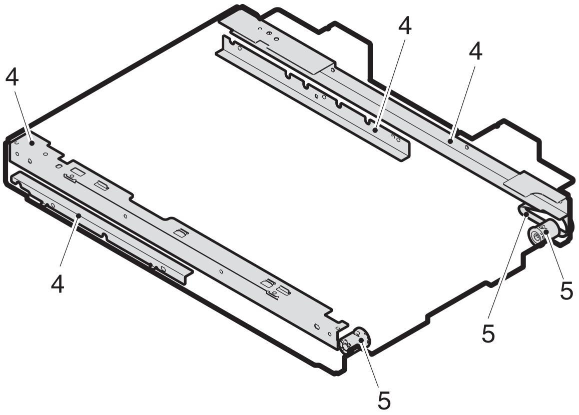
Zooming in the main scanning direction is not performed optically but by the image process technology (software).

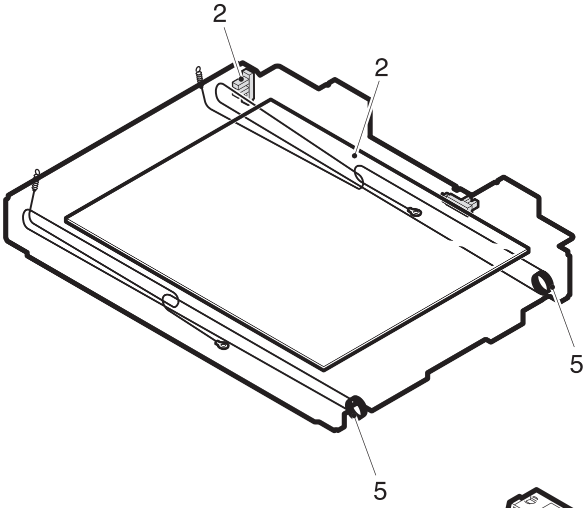
B. Disassembly/assembly/maintenance

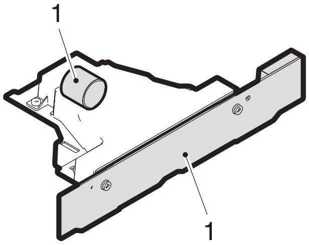
(1) Transfer section maintenance target parts

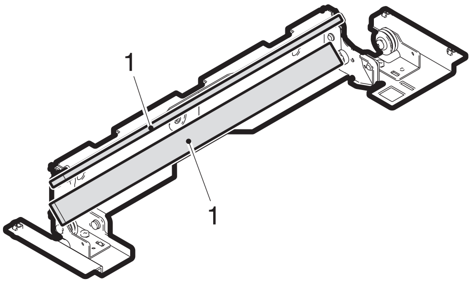
×: Check (Clean, replace, or adjust as necessary.) ❍: Clean ▲: Replace △: Adjust ☆: Lubricate ❑: Shift position

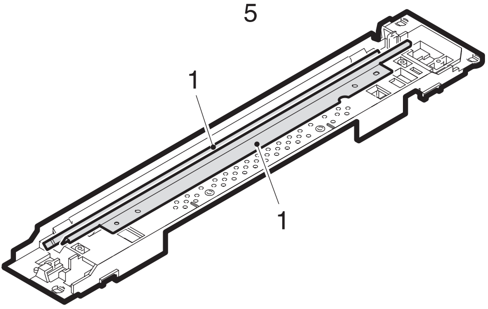
Unit name	No.	Part name	When calling	50K	100K	150K	200K	250K	300K	350K	400K	Remark
Optical section	1	CCD, mirror, lens, reflector	❍	❍	❍	❍	❍	❍	❍	❍	❍	
	2	Table glass, sensors, OC	❍	❍	❍	❍	❍	❍	❍	❍	❍	
	4	Rails	☆	☆	☆	☆	☆	☆	☆	☆	☆	
	5	Drive wire, pulley, pulley belt	×	×	×	×	×	×	×	×	×	







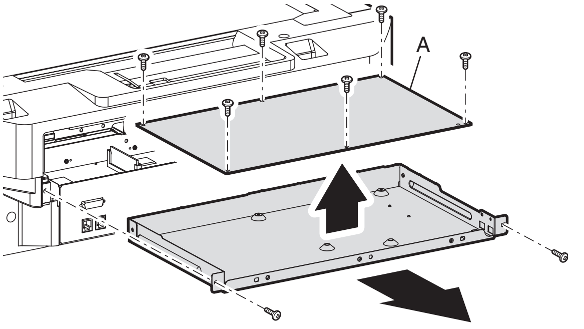




(2) Major parts replacement

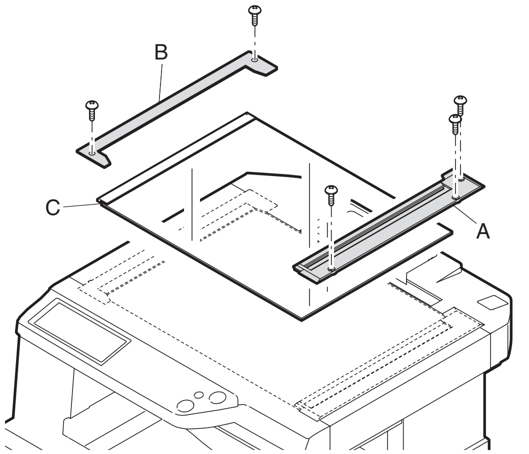
a. MFP PWB

1) Open the upper cabinet rear cover.
2) Remove the connector and the screw, and remove the scanner control PWB unit. Remove the screw and remove the scanner control PWB (A).

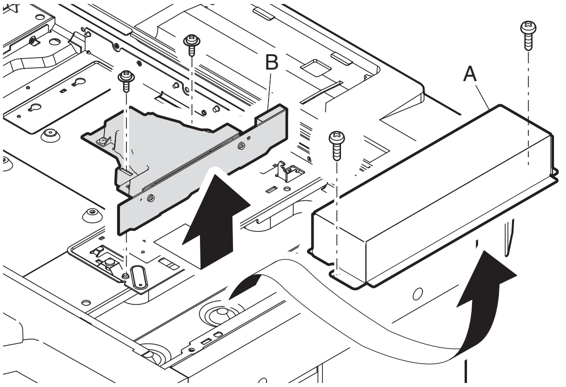


b. CCD unit

1) Remove the screw, the glass holder right (A), the glass holder left (B), and the table glass (C).

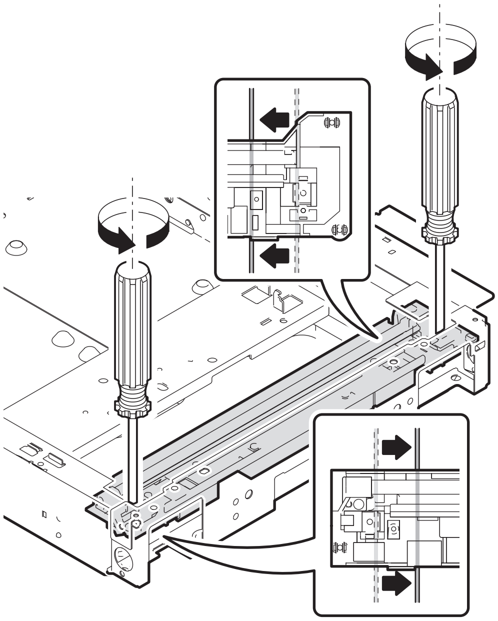


2) Remove the screw and the dark box cover (A). Remove the connector, the screw, and the CCD unit (B).

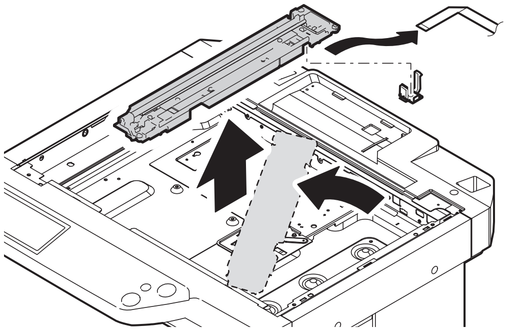


c. Lamp unit

1) Shift the lamp unit to the position shown below. Loosen the screw and remove the wire.

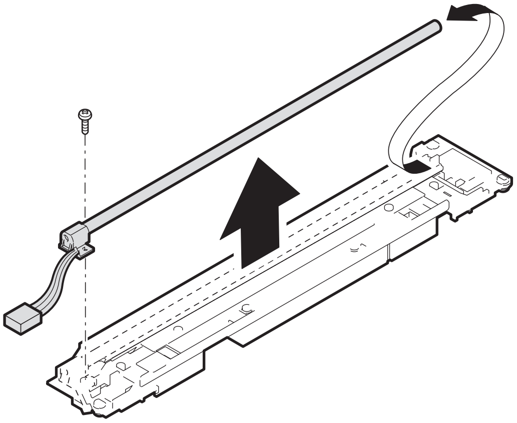


2) Rotate the lamp unit and lift it, and remove the harness holder and the harness. Remove the lamp unit.



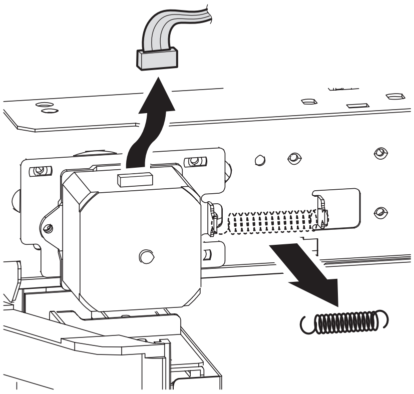
d. Xenon lamp

1) Remove the lamp unit.
2) Remove the harness and the screw, and remove the Xenon lamp.

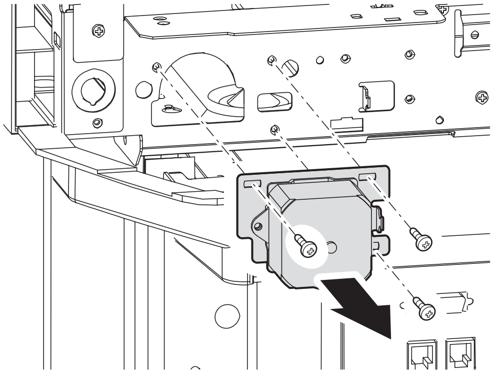


e. Scanner motor

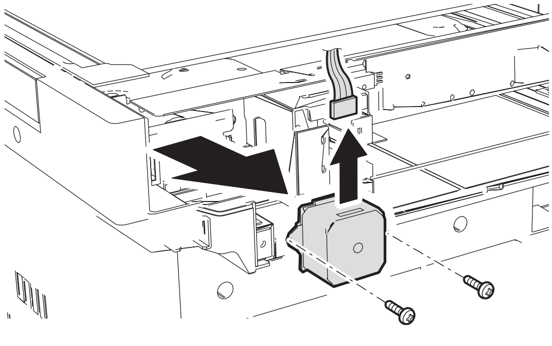
1) Remove the upper cabinet rear unit.
2) Remove the connector and the spring.



3) Remove the screws, and remove the scanner motor unit.

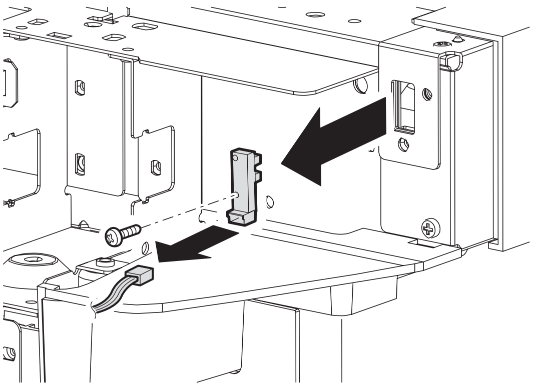


4) Remove the screws, and remove the scanner motor.

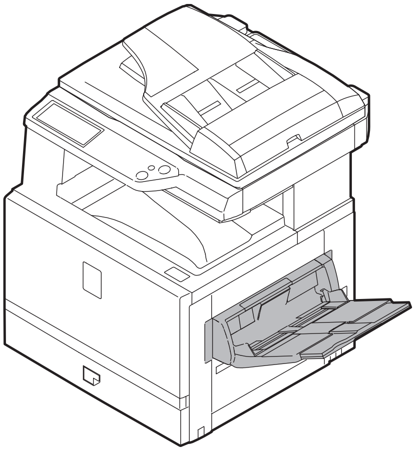


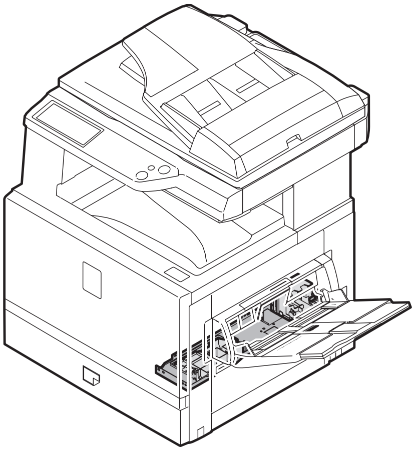
f. MHPS

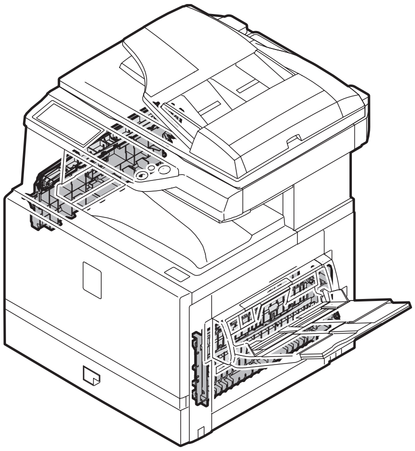
1) Remove the upper cabinet rear unit.
2) Remove the screw and remove the upper cabinet left. Remove the screw and the connector, and remove the MHPS.



5. Paper feed, paper transport, and paper exit sections







A. Operational descriptions

(1) Outline

This model is provided with a cassette paper feed tray and a manual paper feed tray as standard provision.

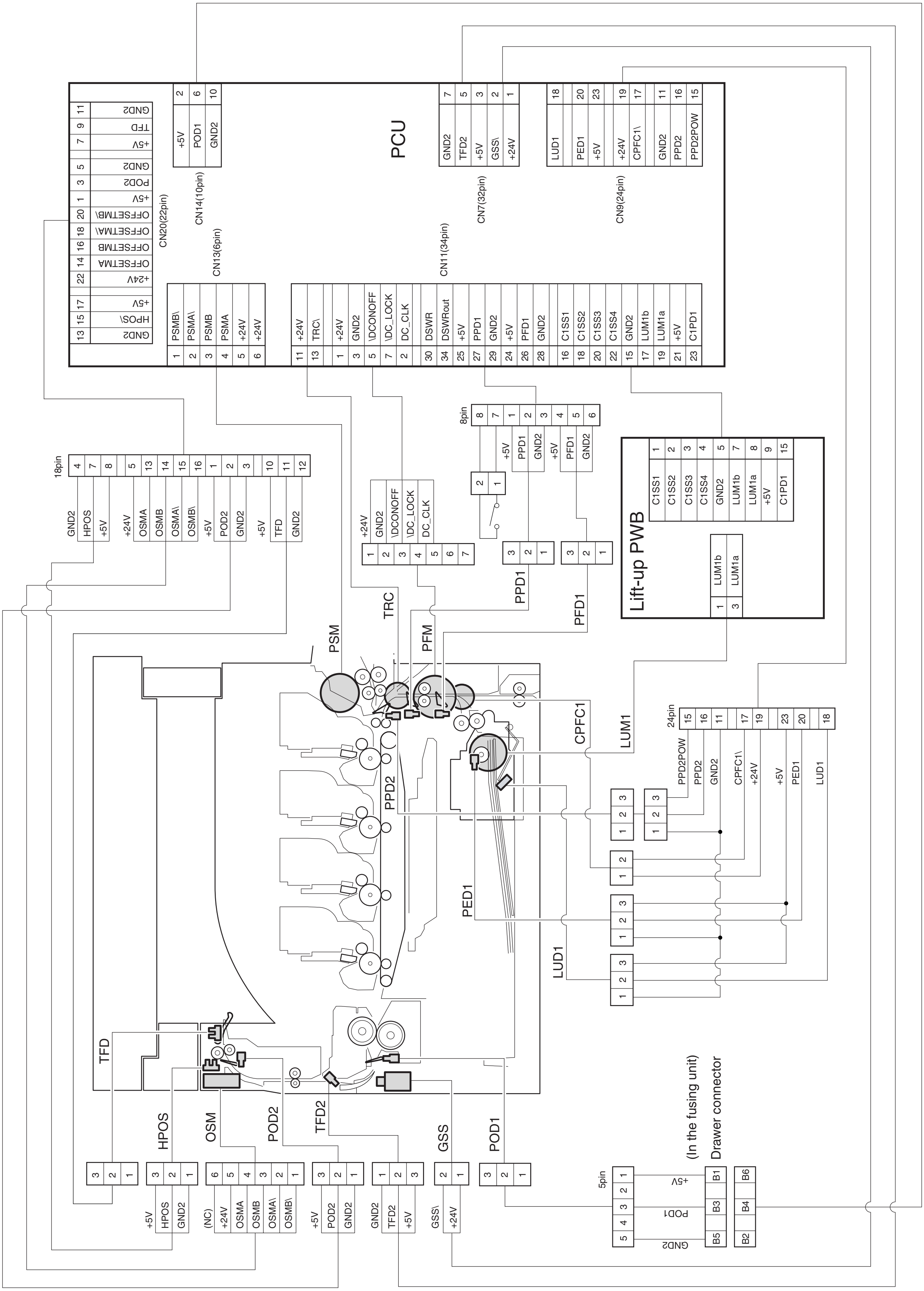
As an option, either the 3-stage paper feed cassette module (AR-D18) or the 2-stage duplex paper feed cassette module (AR-D19) can be installed.

The paper transport section transports paper from each paper feed port to the PS roller section.

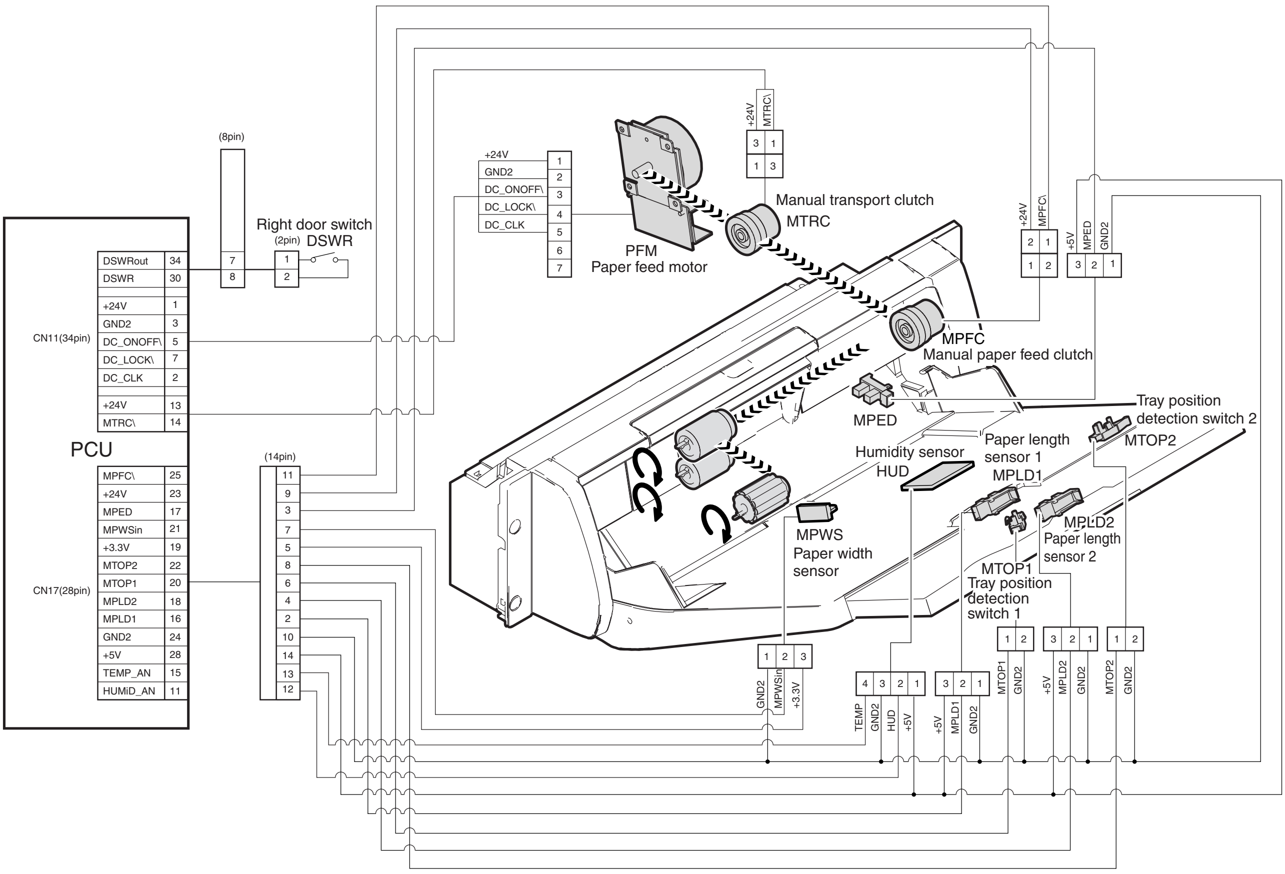
Paper with images transferred on it in the transfer section is passed to the fusing section, and discharged to the face-up tray or the face-down tray.

(2) Electrical section and mechanical section

a. Cassette paper feed, paper transport, and paper exit sections

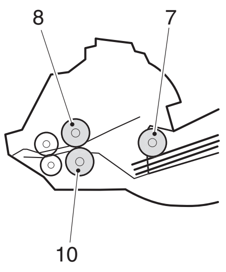

PCU
CN20(22pin)
GND2
TFD
+5V
GND2
POD2
+5V
OFFSETMB\
OFFSETMA\
OFFSETMB
OFFSETMA
+24V
+5V
HPOS\
GND2
CN14(10pin)
+5V
POD1
GND2
CN13(6pin)
PSMB\
PSMA\
PSMB
PSMA
+24V
+24V
CN11(34pin)
+24V
TRC\
+24V
GND2
\DCONOFF
\DC_LOCK
DC_CLK
DSWR
DSWRout
+5V
PPD1
GND2
+5V
PFD1
GND2
C1SS1
C1SS2
C1SS3
C1SS4
GND2
LUM1b
LUM1a
+5V
C1PD1
CN7(32pin)
GND2
TFD2
+5V
GSS\
+24V
CN9(24pin)
LUD1
PED1
+5V
+24V
CPFC1\
GND2
PPD2
PPD2POW
18pin
8pin
24pin
5pin
Lift-up PWB
LUM1b
LUM1a
PSM
TRC
PFM
PPD1
PFD1
CPFC1
LUM1
PPD2
PED1
LUD1
TFD
HPOS
OSM
POD2
TFD2
GSS
POD1
(NC)
OSMA\
OSMB\
(In the fusing unit)
Drawer connector
B1
B3
B5
B6
B4
B2

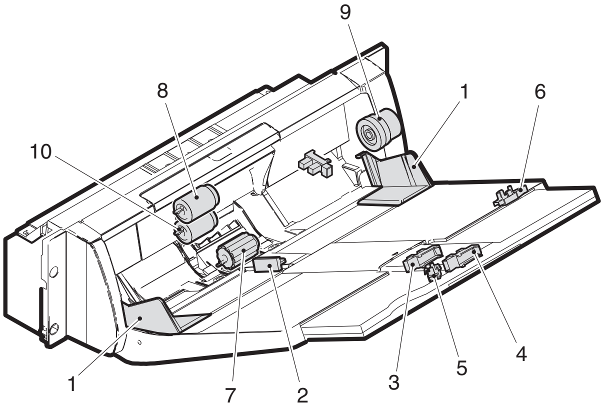
b. Manual paper feed section


PCU
CN11(34pin)
DSWRout 34
DSWR 30
+24V 1
GND2 3
DC_ONOFF\ 5
DC_LOCK\ 7
DC_CLK 2
+24V 13
MTRC\ 14
CN17(28pin)
MPFC\ 25
+24V 23
MPED 17
MPWSin 21
+3.3V 19
MTOP2 22
MTOP1 20
MPLD2 18
MPLD1 16
GND2 24
+5V 28
TEMP_AN 15
HUMiD_AN 11
(8pin)
7
8
Right door switch
(2pin) DSWR
1
2
(14pin)
11 9 3 7 5 8 6 4 2 10 14 13 12
+24V
GND2
DC_ONOFF\
DC_LOCK\
DC_CLK
1 2 3 4 5 6 7
PFM
Paper feed motor
+24V
MTRC\
3 1
1 3
Manual transport clutch
MTRC
+24V
MPFC\
2 1
1 2
+5V
MPED
GND2
3 2 1
MPFC
Manual paper feed clutch
MPED
Tray position
detection switch 2
MTOP2
Humidity sensor
HUD
Paper length
sensor 1
MPLD1
MPLD2
Paper length
sensor 2
MPWS
Paper width
sensor
MTOP1
Tray position
detection
switch 1
1 2 3
GND2
MPWSin
+3.3V
4 3 2 1
TEMP
GND2
HUD
+5V
3 2 1
+5V
MPLD1
GND2
1 2
MTOP1
GND2
3 2 1
+5V
MPLD2
GND2
1 2
MTOP2
GND2

(3) Major parts and signals functions and operations

a. Manual paper feed unit

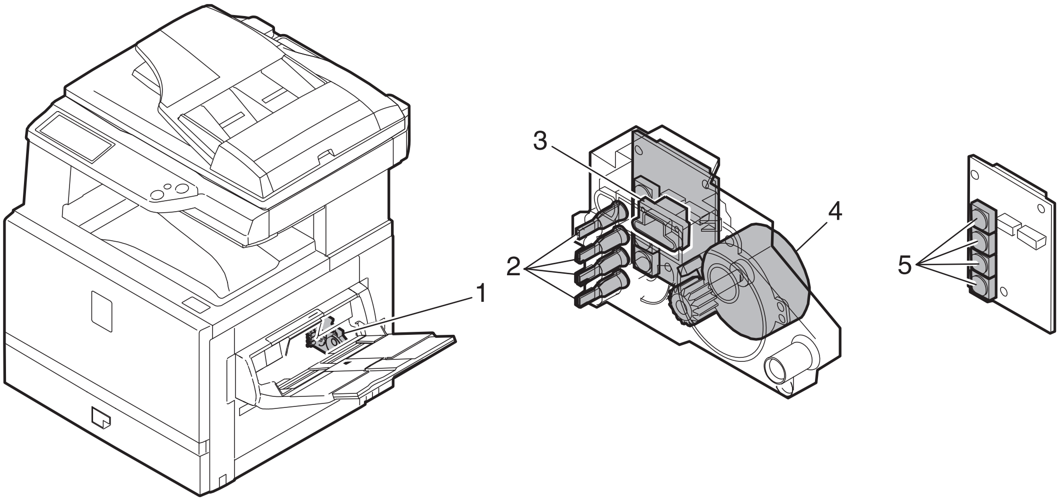



9
8
1
6
10
1
7
2
3
5
4

No.	Name	Code, Signal name	Function
RW	Paper detector	MPED	Detects paper empty/presence in the paper tray.
1	Paper size (width) adjuster	—	Adjusts the paper position.
2	Paper size (width) sensor	MPWS	Detects the paper width.
3	Paper size (length) detector	MPLD1	Detects the paper length.
4	Paper size (length) detector 2	MPLD2	Detects the paper length.
5	Tray position detector	MTOP1	Detects the paper tray position.
6	Tray position detector	MTOP2	Detects the paper tray position.
7	Paper pickup roller	—	Sends paper to the paper feed roller.
8	Manual paper feed roller	—	Feeds paper to the paper transport section.
9	Manual paper feed clutch	MPFC	Transmits the paper feed drive motor power to the manual paper feed roller.
10	Separation roller	—	Separates paper and transmits it to the paper feed unit.
RW	Manual transport clutch	—	Transmits the paper feed motor power to the manual paper feed unit.
RW	Paper feed motor	—	Drives the paper feed section and the manual paper feed unit.

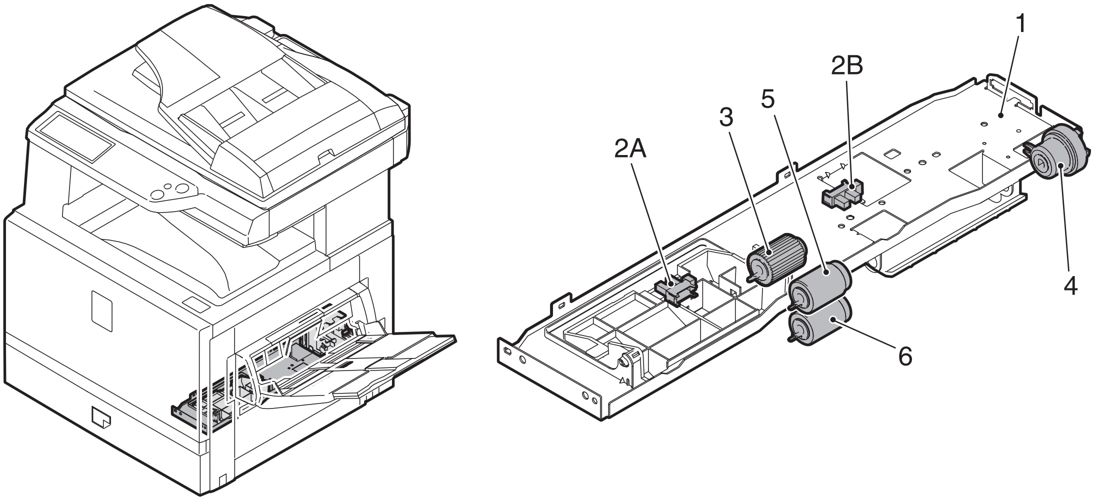
RW: Abbreviation of Related Wiring, which means the said load is specified in the related figure of the mechanical and the electrical sections.

b. Paper tray lift unit



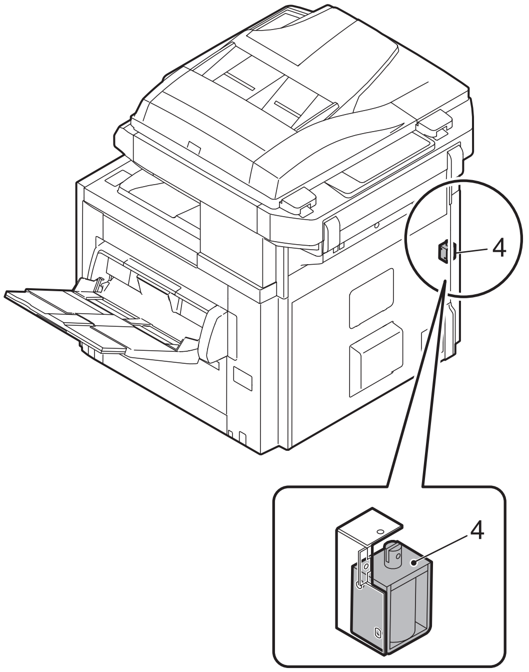
No.	Name	Code, Signal name	Function
1	Paper tray lift unit	—	Drives the paper tray lift plate.
2	Paper size detection actuator	—	Transmits the status data of the paper size block to the paper size detector.
3	Paper tray lift unit control PWB	—	Controls the paper tray lift unit.
4	Lift motor	LUMx	Drives the lift plate.
5	Paper size detector (switch)	CxSSx	Detects the paper size set by the paper size set block.

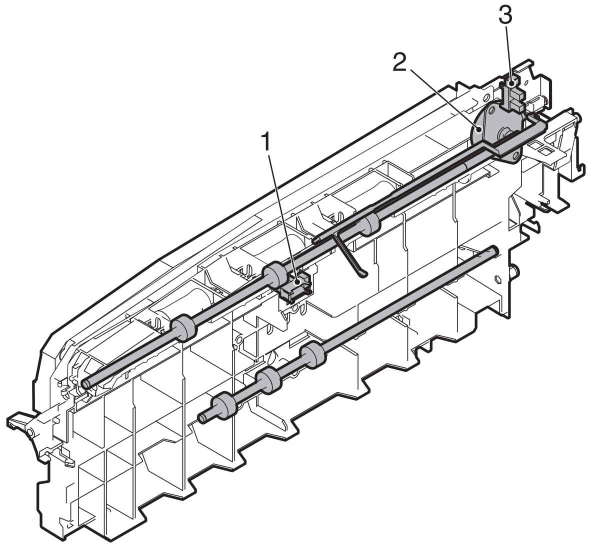
c. Paper feed unit



No.	Name	Code, Signal name	Function
1	Paper tray paper feed unit	—	Feeds paper from the paper tray to the transport section.
2A	Paper empty detector	PEDx	Detects paper empty in the paper tray.
2B	Paper upper limit detector	LUDx	Detects the paper upper limit position. (Keeps the friction between the paper pickup roller and paper at a constant level.)
3	Paper pickup roller	—	Feeds paper to the paper feed roller.
4	Paper feed clutch	CPFCx	Controls ON/OFF of the paper feed roller.
5	Paper feed roller	—	Feeds paper to the paper transport section.
6	Separation roller	—	Separates paper to prevent against double feed.

d. Paper exit section





No.	Name	Code, Signal name	Function
1	Paper exit sensor	POD2	Detects discharged paper.
2	Offset motor	OSM	Drives the paper exit offset.
3	Shifter home position sensor	HPOS	Detects the offset home position.
4	Paper exit switch gate solenoid	GSS	Drives the face-up/down switch gate.

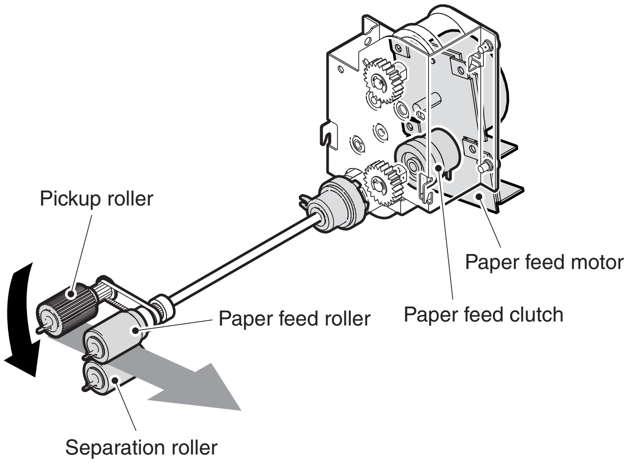
(4) Operational descriptions

a. Paper feed tray section operation

The paper pickup roller moves up and down to press paper and separates the top paper, which is fed to the paper feed roller.

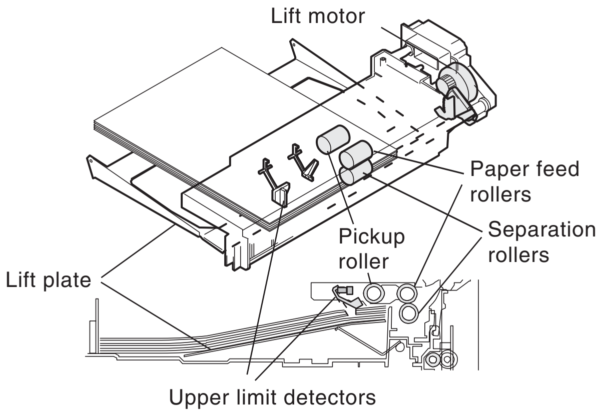
The paper feed roller feeds paper to the paper transport section. The separation roller prevents against double feed.

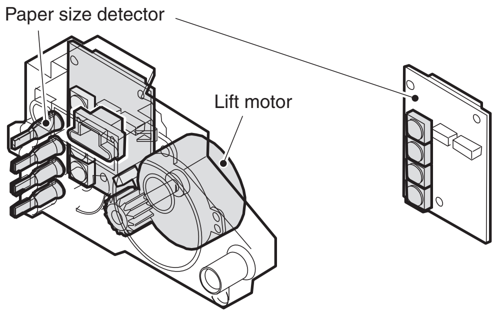
Up and down movement of the pickup roller is driven by the pickup solenoid, and ON/OFF control of the pickup roller and the paper feed roller is performed by the paper feed clutch.


Pickup roller
Paper feed motor
Paper feed roller
Paper feed clutch
Separation roller

The paper lift plate lifts paper to control the upper limit position of paper so that the pressure between the top paper and the pickups roller remains constant. Lifting is performed by the lift motor and the lift gear.

The lift position is detected by the paper upper limit detector to control the pressure between the top paper and the pickup roller.


Lift motor
Paper feed rollers
Separation rollers
Pickup roller
Lift plate
Upper limit detectors


Paper size detector
Lift motor

The paper feed tray is provided with the paper size detection block, and the status of this block is detected with the combination of ON/OFF of the four paper size detectors to recognize the paper size.

Relationship between the paper size detector and the paper size

Paper size detector				Paper size		
				Destination		
CSS4	CSS3	CSS2	CSS1	Japan	AB series	Inch series
ON	OFF	OFF	ON	A3	A3	11 x 17
OFF	OFF	ON	ON	B4	B4	8.5 x 14
ON	OFF	ON	OFF	A4R	A4R	11 x 8.5R
OFF	ON	ON	OFF	A4	A4	11 x 8.5
OFF	ON	ON	ON	B5R	B5	INVOICE
OFF	ON	OFF	ON	B5	A5	FOOLSCAP
ON	ON	ON	OFF	A5	11 x 8.5	A4
ON	ON	OFF	OFF	EXTRA	EXTRA	EXTRA
Patterns other than above				Recognized that the paper tray is not inserted.		

EXTRA: Operates with the paper size set by the user program.

The lift position sensor detects the lift plate lower limit position. Then lift-up operation is started, and the rotation of the lift motor up to detection of the upper limit by the paper upper limit detector is used to calculate the paper remaining quantity.

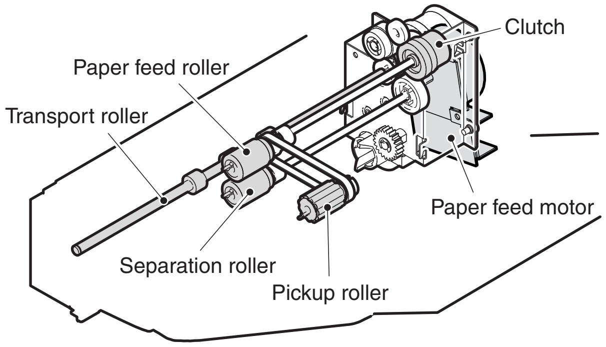
b. Manual paper feed section operation

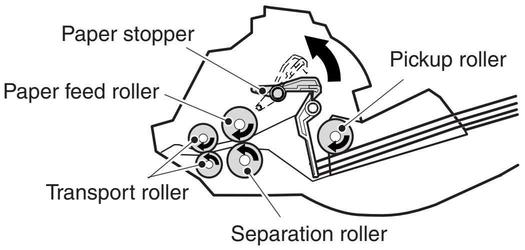
The paper pickup roller moves up and down to press paper and separates the top paper, which is fed to the paper feed roller.

The paper feed roller feeds paper to the paper transport section. The separation roller prevents against double feed.

The manual paper feed clutch controls ON/OFF of the pickup roller and the paper feed roller.

The manual transport roller transports paper to the resist roller.


Clutch
Paper feed roller
Transport roller
Paper feed motor
Separation roller
Pickup roller

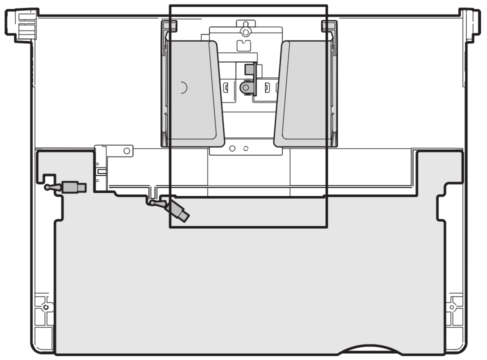

Paper stopper
Pickup roller
Paper feed roller
Transport roller
Separation roller

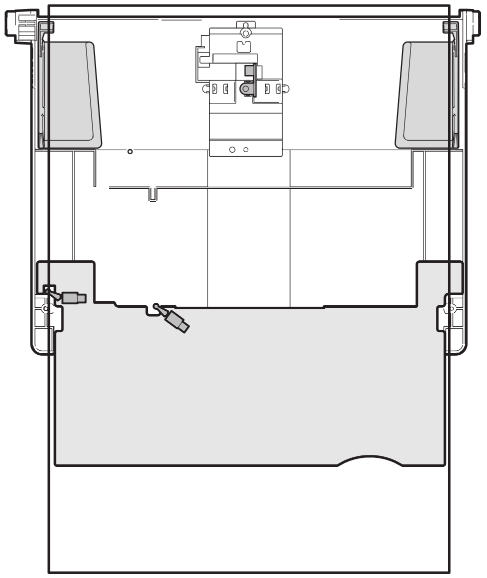
The paper size is detected by the paper length detector and the paper width sensor.

A volume-type sensor is used as the paper width sensor. The resistance varies according to variation of the paper guide position to detect the paper width.

The tray position detector detects that the paper tray is set to the maximum length position or to the minimum length position.

When the paper tray is set to the maximum length position, the paper length detector is forcibly turned ON. This is to recognize it.

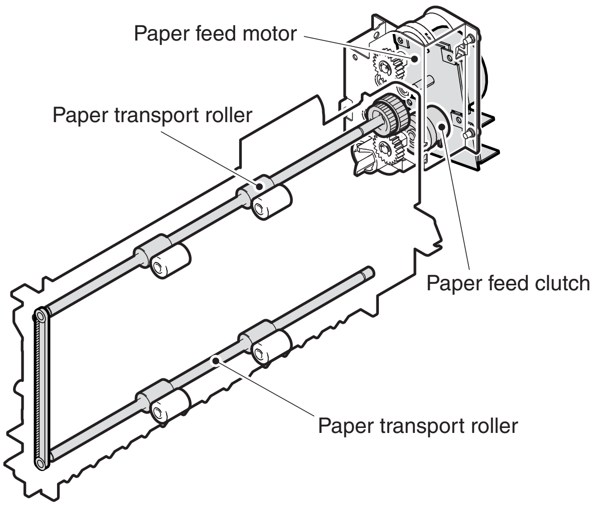




c. Paper transport section

This section transports paper from each paper feed section to the transfer section (resist roller) by two transport rollers.

The paper transport clutch controls ON/OFF of each transport roller.

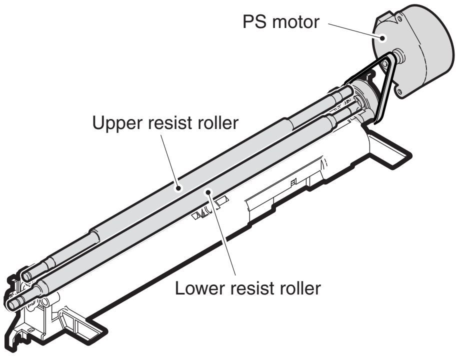

Paper feed motor
Paper transport roller
Paper feed clutch
Paper transport roller

d. Paper resist section

The resist roller controls the relative position of the transported paper and the transfer image.

The resist roller is driven by the resist roller motor.

The relative position of paper and the transfer image is determined by the ON timing of the resist roller motor.



e. Others

∗ The paper transport section is provided with two paper detectors, which perform the following functions:

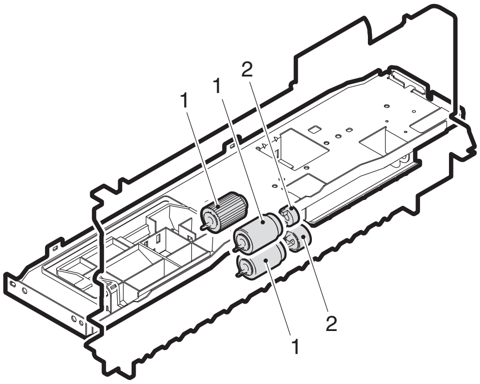
1) Paper jam detection
2) Output of the reference signal for the operating timing of each load

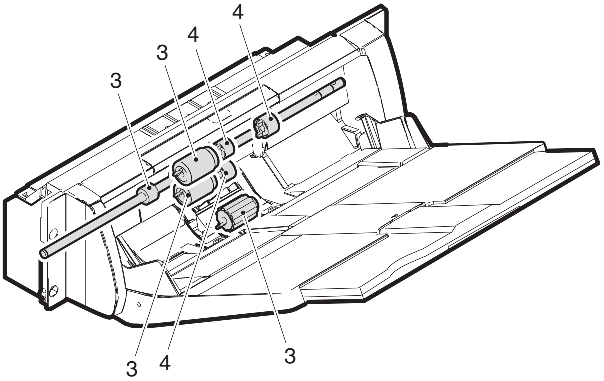
B. Disassembly/assembly/maintenance

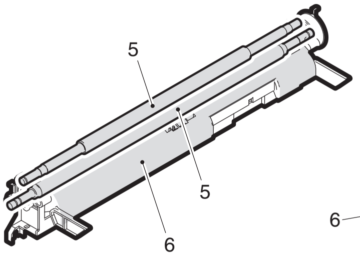
(1) Paper feed/transport sections maintenance target parts

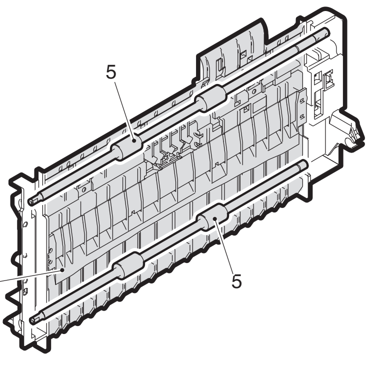
×: Check (Clean, replace, or adjust as necessary.) ❍: Clean ▲: Replace Δ: Adjust ☆: Lubricate ❏: Shift position

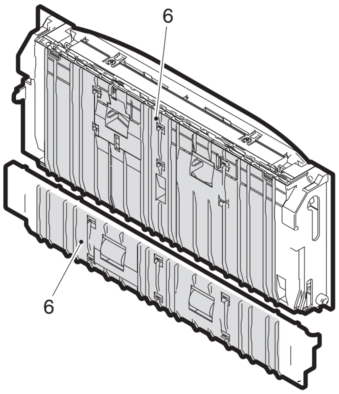
Unit name	No.	Part name	When calling	50K	100K	150K	200K	250K	300K	350K	400K	Remark
Paper feed section	1	Paper feed rollers in the cassette section	❍	❍	×	❍	×	❍	×	❍	×	Replace at the specified count at each paper feed port or within 2 years.
	2	Torque limiter	×		×		×		×		×	
	3	Paper feed rollers in the manual paper feed section	❍	×	×	×	×	×	×	×	×	Replace at the specified count at each paper feed port or within 2 years.
	4	Torque limiter	×	×	×	×	×	×	×	×	×	
Transport section	5	Transport rollers	❍	❍	❍	❍	❍	❍	❍	❍	❍	
	6	Transport paper guide	❍	❍	❍	❍	❍	❍	❍	❍	❍	









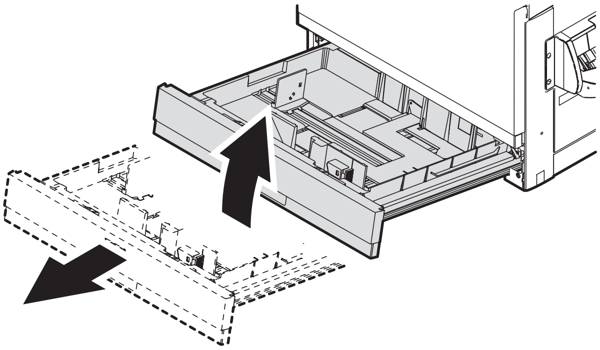


(2) Maintenance parts and major parts replacement

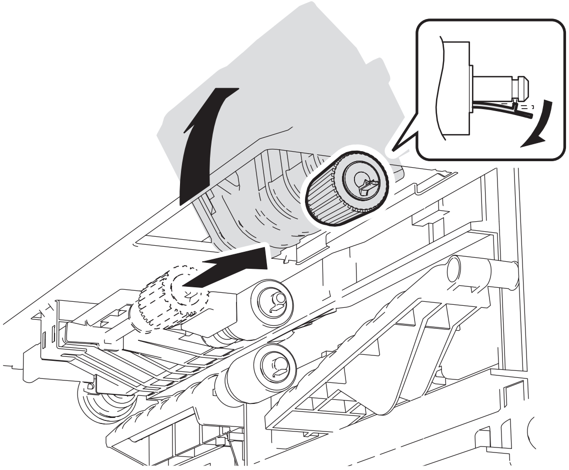
a. Cassette paper feed

<1> Pickup roller

1) Remove the cassette.



2) Disengage the pawl, and remove the pickup roller.

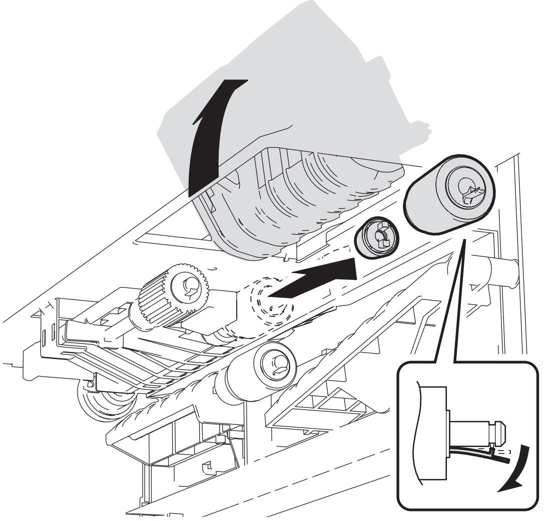


Note: Do not remove the transfer belt unit.

<2> Paper feed roller, torque limiter

1) Remove the cassette.

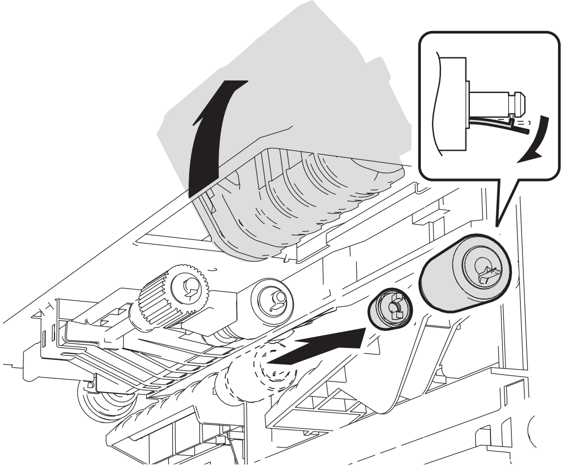
2) Disengage the pawl, and remove the paper feed roller.



<3> Paper separation roller, torque limiter

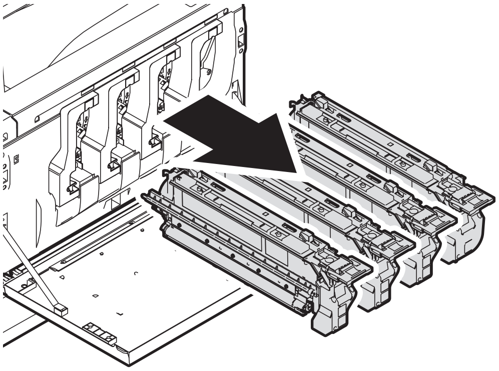
1) Remove the cassette.

2) Disengage the pawl, and remove the paper separation roller.

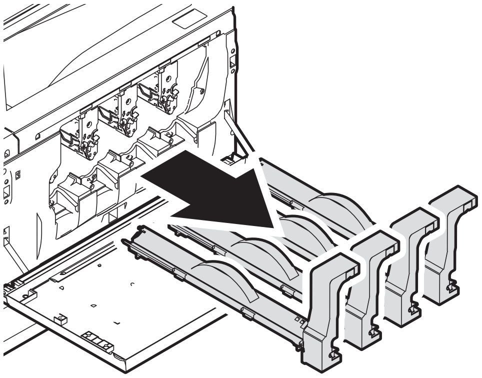


<4> Cassette paper feed unit

1) Open the front cabinet, and remove the drum unit.

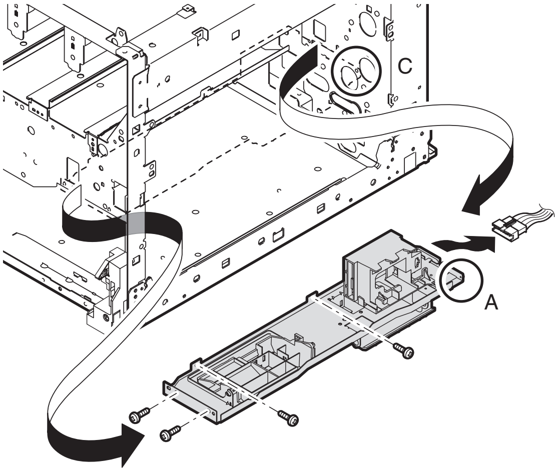


2) Remove the developing unit.



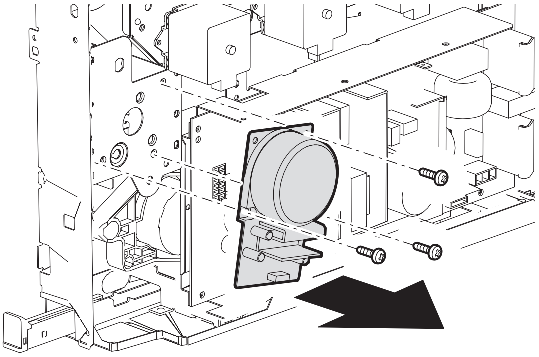
3) Remove the front cabinet and the front frame cover.
4) Remove the multi manual paper feed unit.
5) Remove the connection right cabinet, the rear cabinet, and the rear right cabinet.
6) Remove the screw and the paper feed unit. Remove the connector.

∗ When assembling, fit the positioning pin A with section C.



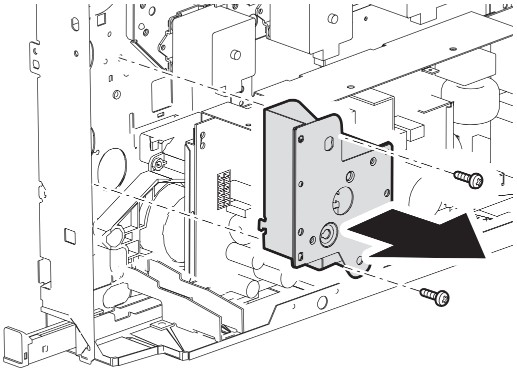
<5> Paper feed drive motor

1) Remove the screw, the rear cabinet, the rear right cabinet, and the connection right cabinet B.
2) Remove the screw, and remove the paper feed drive motor.



<6> Paper feed drive unit

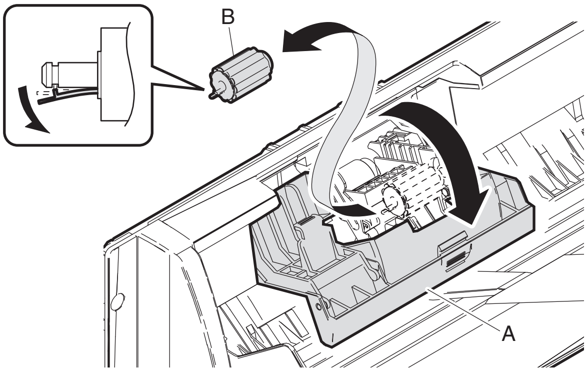
1) Remove the harness and the screw, and remove the paper feed drive unit.



b. Multi manual paper feed

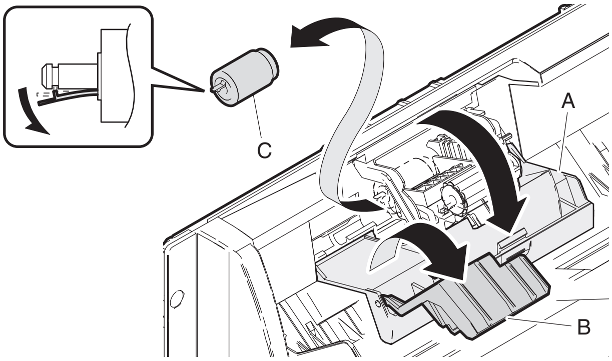
<1> Pickup roller

1) Open the arm cover (A). Disengage the pawl, and remove the pickup roller (B).



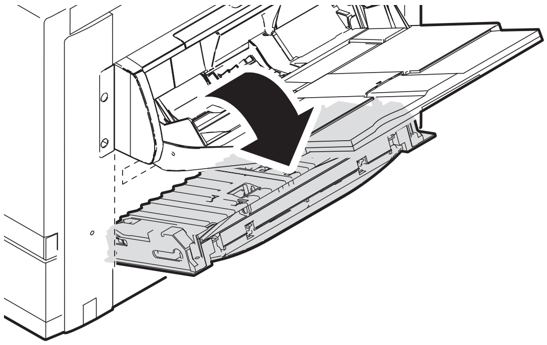
<2> Paper feed roller

1) Open the arm cover (A), open the auxiliary PG (B), and remove the paper feed roller (C).

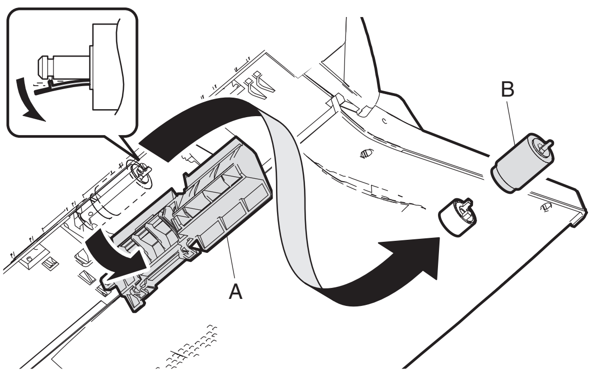


<3> Paper separation roller

1) Open the vertical transport guide.

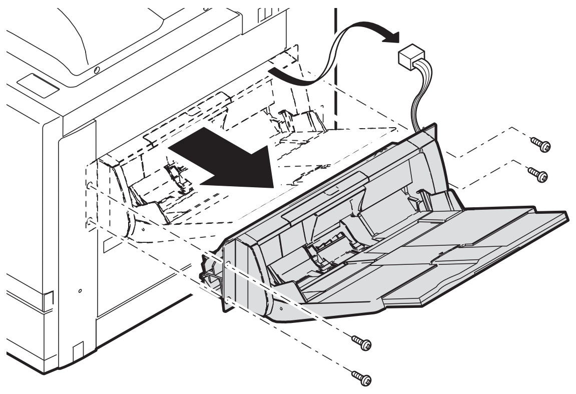


2) Open the maintenance cover (A) from the bottom of the multi paper feed unit. Disengage the pawl and remove the paper feed separation roller (B).



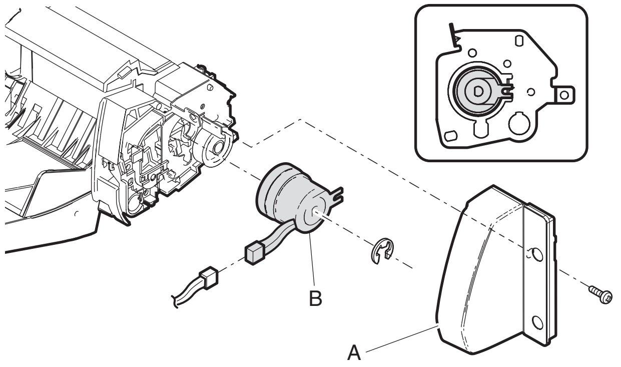
<4> Multi manual paper feed unit

1) Remove the screw and the harness, and remove the multi paper feed unit.



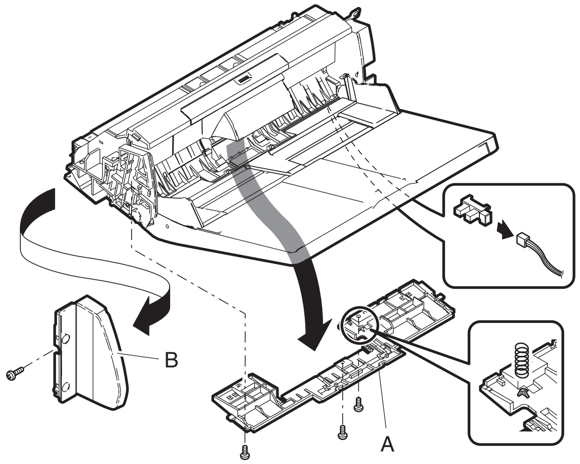
<5> Paper feed clutch

1) Remove the screw and the cover (A). Remove the connector and the E-ring, and remove the paper feed clutch (B).



<6> Transport roller

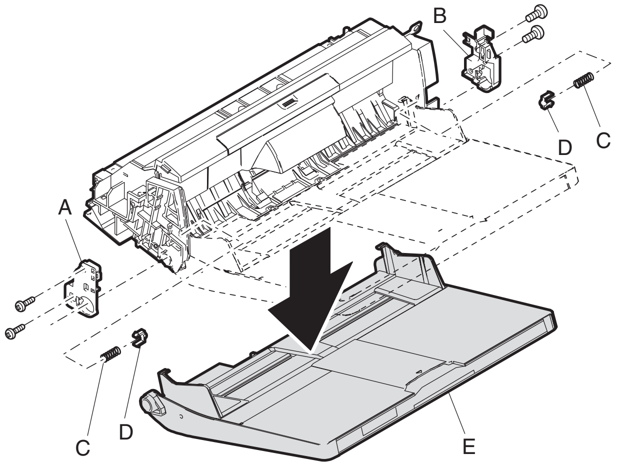
1) Remove the bottom lid (A), remove the connector and the screw, and remove the cover (B).



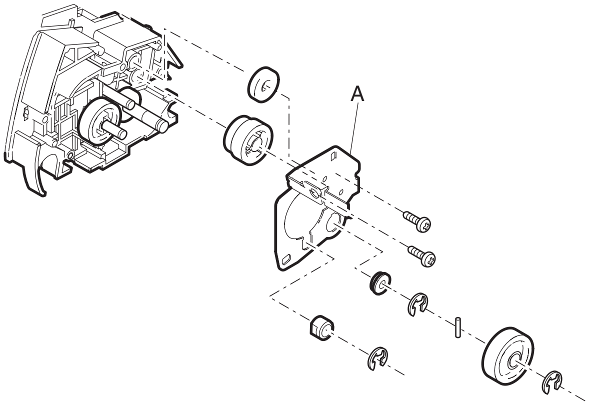
∗ When assembling, fit the cover projection with the spring.

2) Remove the screw, and remove (A) and (B).

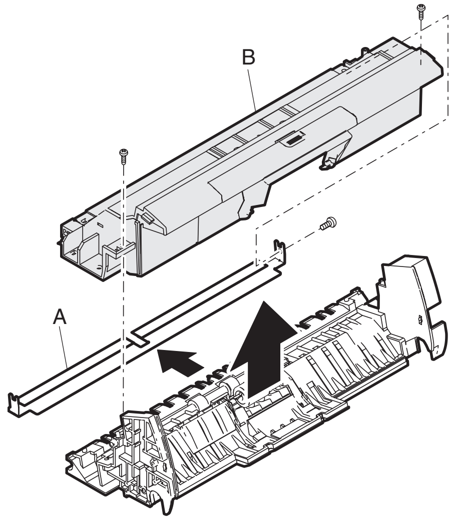
∗ When assembling, first attach (A), then attach (C) and (D).



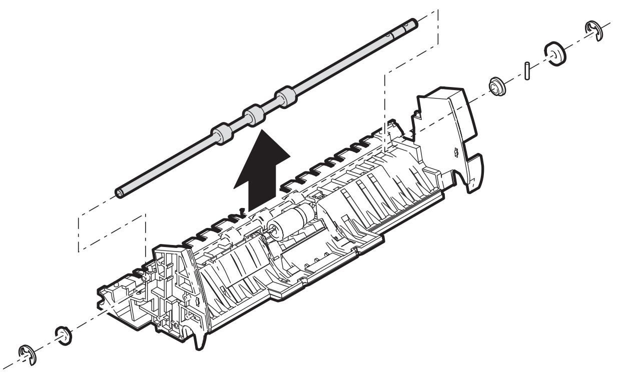
3) Remove the screw and the E-ring, and remove the angle (A) and the gear.



4) Remove the screw, and remove (A) and the manual upper unit (B).



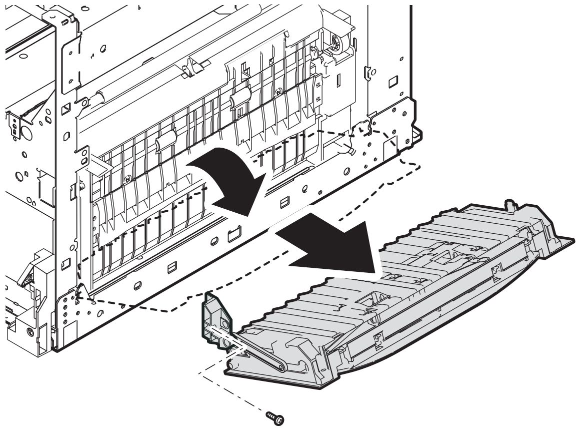
5) Remove the E-ring, the gear, and the bearing, and remove the transport roller.



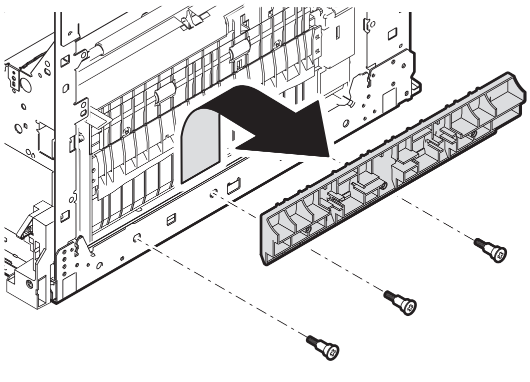
c. Transport section

<1> Vertical transport unit

1) Remove the drum and the developing unit.
2) Remove the front cabinet.
3) Remove the front frame cover.
4) Remove the multi manual paper feed unit.
5) Remove the rear cabinet, the connection right cabinet, the rear right cabinet, the front right cabinet, and the right lower cabinet.
6) Open the vertical transport guide. Remove the screw and remove the vertical transport guide unit.

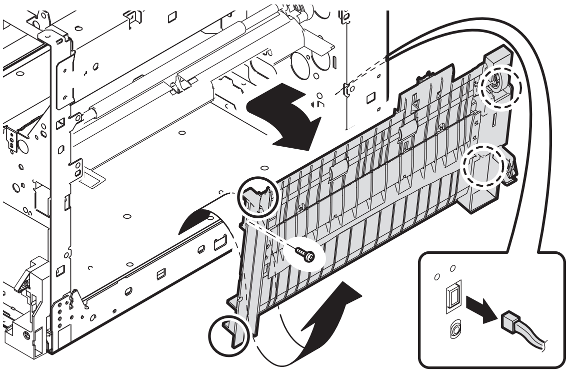


7) Remove the screw, and remove the vertical transport lower unit.



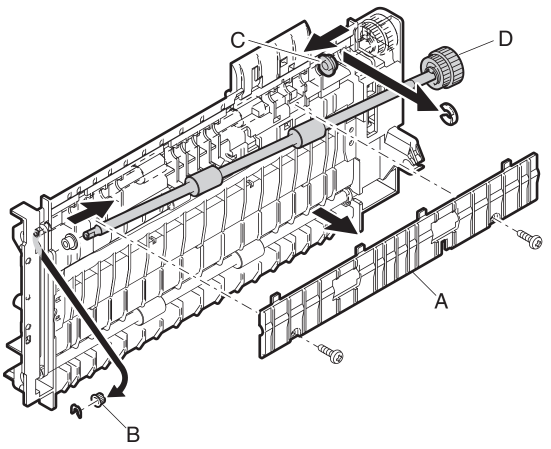
8) Remove the paper feed drive motor, and remove the connector on the rear side. Remove the screw, and shift the vertical transport unit to the left to remove.

   * When assembling, engage the four bosses indicated with ○ in the figure below.

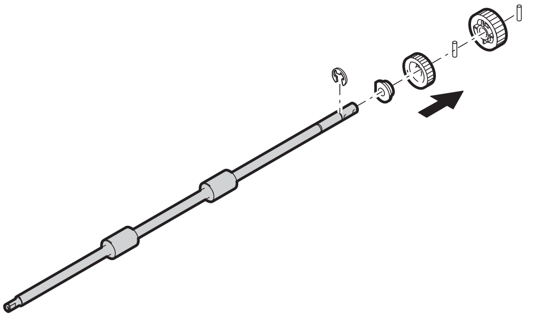


<2> Transport roller 2

1) Remove the vertical transport unit.
2) Remove the screw, and remove the paper guide (A).
3) Remove the resin ring, and remove the pulley (B) from the belt.
4) Remove the resin E-ring, slide the bearing (C), and remove the transport roller 2 unit (D).

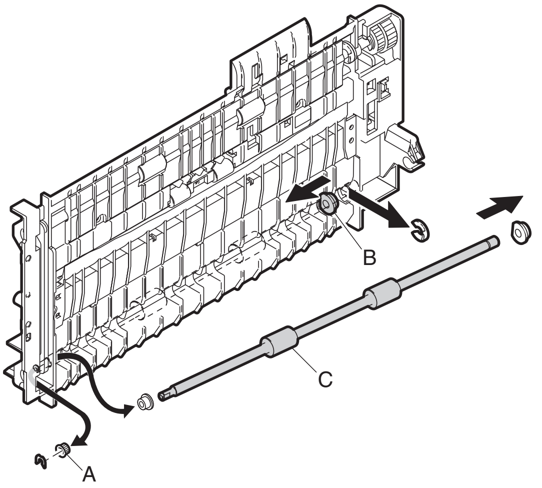


5) Remove the E-ring and parts, and remove the transport rollers.



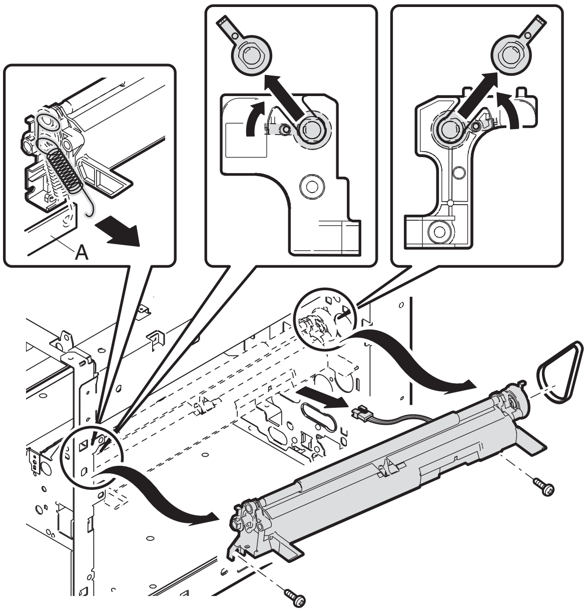
<3> Transport roller 1

1) Remove the vertical transport unit.
2) Remove the resin ring. Remove the pulley (A) from the belt.
3) Remove the resin E-ring, slide the bearing (B), and remove the transport roller 1 (C).



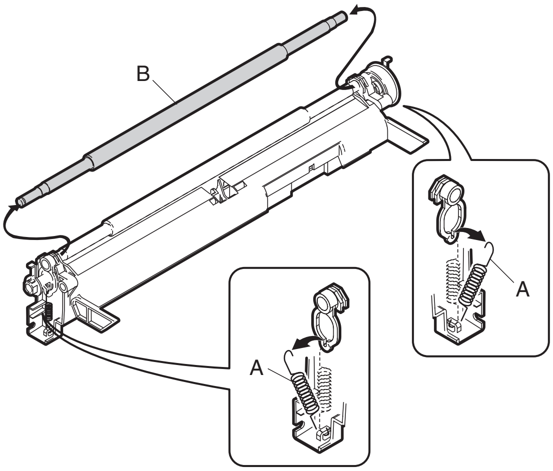
<4> PS unit

1) Remove the vertical transport unit.
2) Remove the screw and the spring. Release the lock. Remove the belt and remove the PS unit.
   - ∗ When assembling, attach from the left with avoiding the plate in section A.



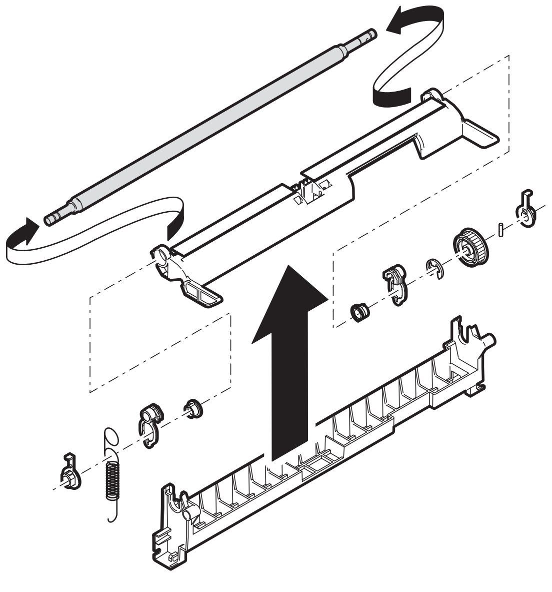
<5> Upper resist roller

1) Remove the vertical transport unit.
2) Remove the PS unit.
3) Remove the spring (A), and remove the upper resist roller (B).



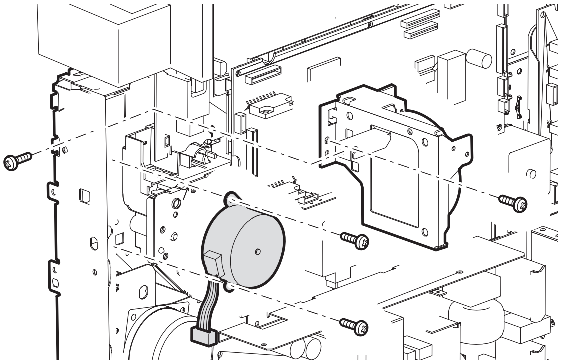
<6> Lower resist roller

1) Remove the vertical transport unit.
2) Remove the PS unit.
3) Remove the upper resist roller.
4) Remove the parts and remove the lower resist roller.



<7> PS motor

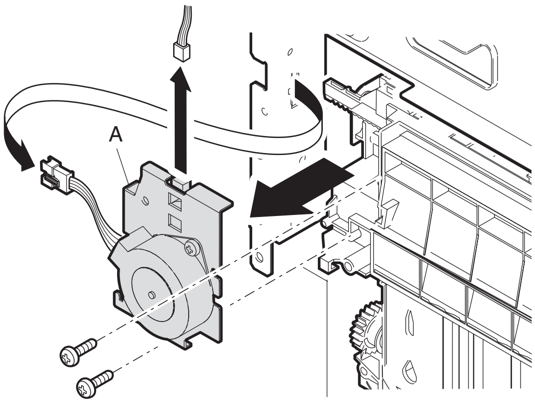
1) Remove the rear cabinet, the connection right cabinet, and the rear right cabinet.
2) Remove the connector and the screw, and remove the process exhaust fan unit. Remove the connector and the screw, and remove the PS motor.



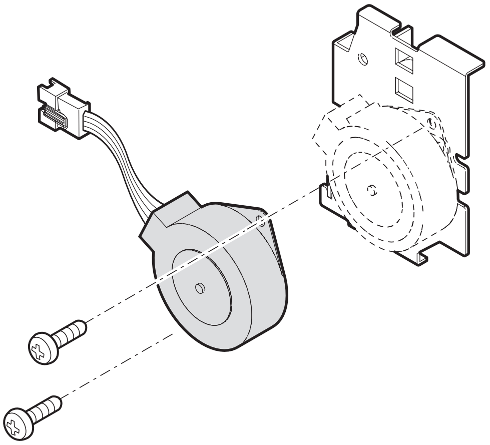
d. Paper exit section

<1> Slide drive motor

1) Open the left cabinet.
2) Remove the FD connection cabinet.
3) Remove the connector and the screw, and remove the motor unit.

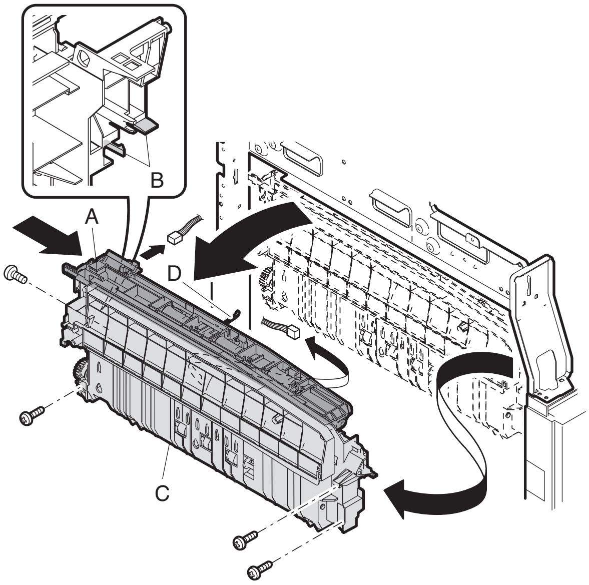


4) Remove the connector and the screw, and remove the motor (A).



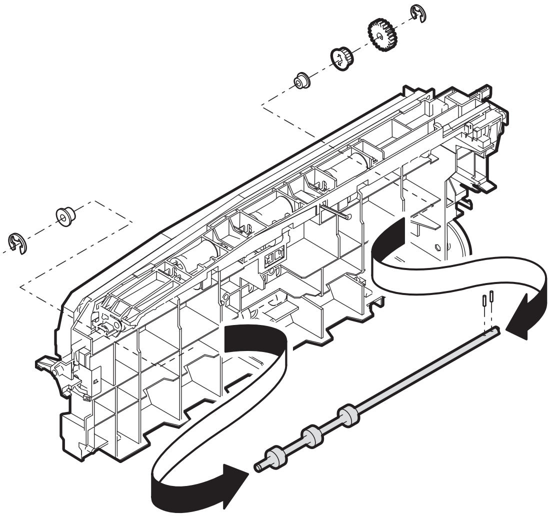
<2> FD paper exit unit

1) Remove the rear cabinet, the rear cabinet upper, the left cabinet, the rear left cabinet lid, the rear left cabinet, and the front cabinet upper.
2) Remove the motor unit.
3) Slide section (A) to the front side. Remove the screw, and disengage the pawl in section (B). Remove the FD paper exit unit (C) from the rear side and remove the connector.
   - ∗ When assembling, attach from the front side.
   - ∗ When assembling, be careful not to damage the actuator (D).



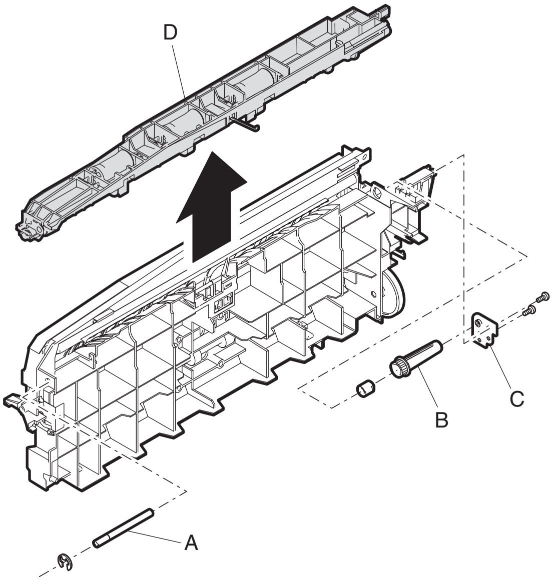
<3> FD paper exit roller B

1) Remove the cabinet.
2) Remove the paper exit unit.
3) Remove the E-ring, the bearing, and the gear. Remove the FD paper exit roller B.

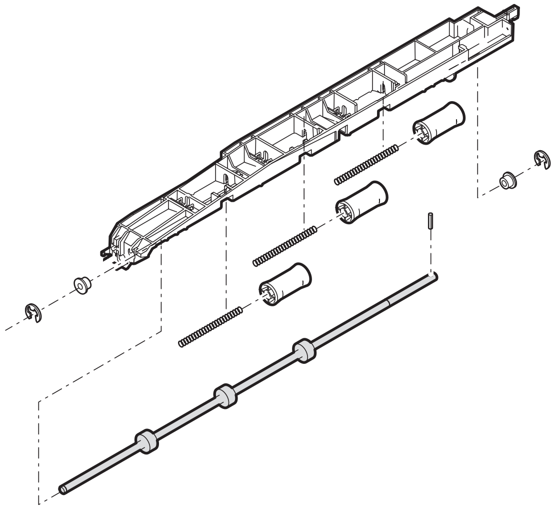


<4> FD paper exit roller A

1) Remove the cabinet.
2) Remove the paper exit unit.
3) Remove the E-ring, (A), the screw, (B), (C), and the bearing. Remove the unit (D).

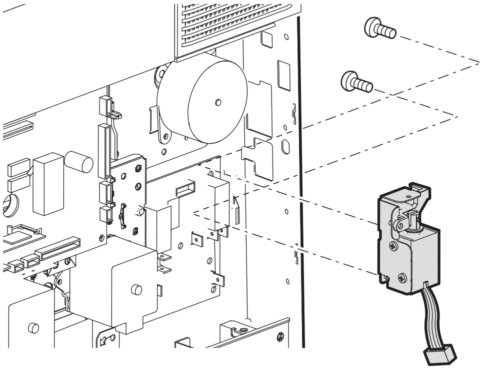


4) Remove the E-ring and the bearing, and remove the FD paper exit roller A.



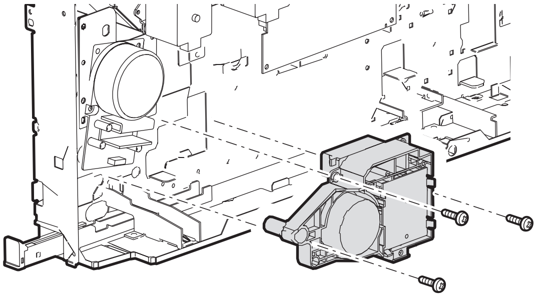
e. Gate solenoid unit

1) Open the left door, and remove the rear cabinet and the rear left cabinet.
2) Remove the driver PWB unit.
3) Remove the connector and the screw, and remove the gate solenoid unit.



f. Lift-up unit

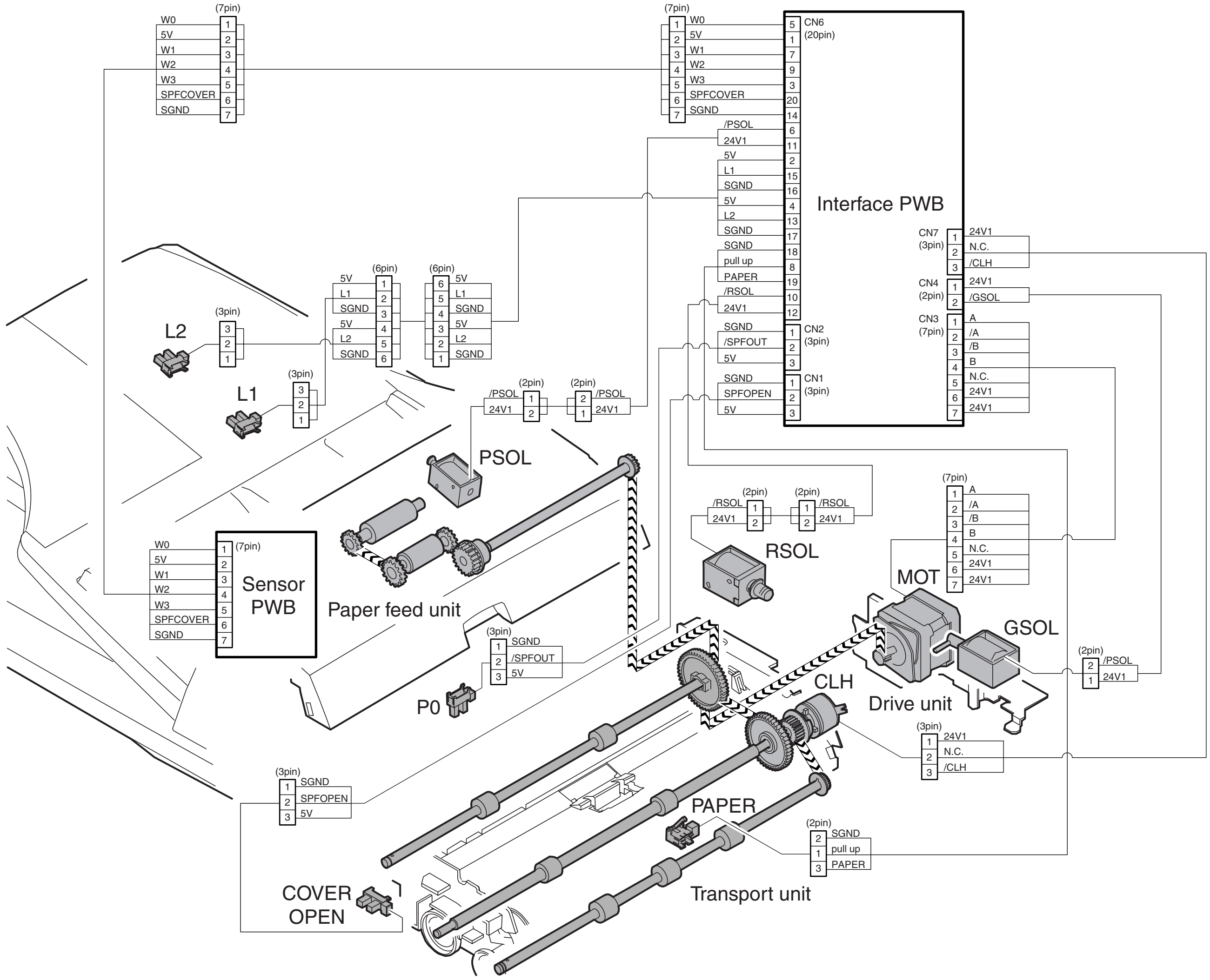
1) Remove the rear cabinet and the rear right cabinet.
2) Remove the power PWB unit.
3) Remove the connector and the screw, and remove the lift-up unit.



6. RSPF section

A. Operational descriptions

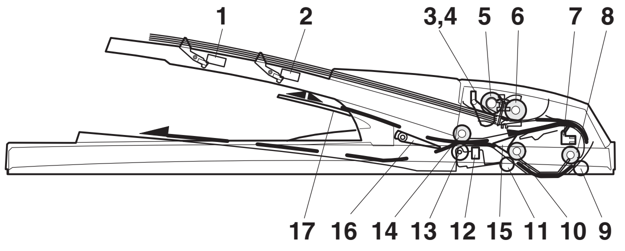
(1) Electrical section and mechanical section



(7pin)
W0
5V
W1
W2
W3
SPFCOVER
SGND
CN6
(20pin)
Interface PWB
/PSOL
24V1
5V
L1
SGND
L2
pull up
PAPER
/RSOL
/SPFOUT
SPFOPEN
CN2
(3pin)
CN1
(3pin)
CN7
(3pin)
N.C.
/CLH
CN4
(2pin)
/GSOL
CN3
(7pin)
A
/A
/B
B
(6pin)
(3pin)
(2pin)
L2
L1
PSOL
RSOL
MOT
GSOL
Sensor PWB
Paper feed unit
P0
CLH
Drive unit
PAPER
Transport unit
COVER OPEN

(4) Operational descriptions

a. Major parts of the paper feed section



1
2
3,4
5
6
7
8
17
16
14
13
12
15
11
10
9

NO.	Part name	Operations, etc.
1	Document length sensor (L2)	Detects the document length of the tray.
2	Document length sensor (L1)	Detects the document length of the tray.
3	Document set sensor (W0)	Detects presence of a document.
4	Document width sensor (W1, W2, W3)	Detects the document width.
5	Pickup roller	Picks up a document.
6	Paper feed roller	Feeds and transports a document.
7	Paper entry sensor (PAPER)	Detects transport of a document.
8	PS roller	Synchronizes the document lead edge and the image lead edge.
9	PS follower roller	Synchronizes the document lead edge and the image lead edge.
10	Transport roller	Transports a document.
11	Transport follower roller	Transports a document.
12	Paper exit sensor (P0)	Detects transport of a document.
13	Paper exit follower roller	Discharges a document.
14	Paper exit roller	Discharges a document.
15	Reverse gate	Opens/closes the document reverse path.
16	Paper exit gate	Switches the discharged paper path to the intermediate tray or to the paper exit tray.
17	Intermediate tray	Discharges paper to the intermediate tray in document reverse operation.

b. Operation process

[Duplex document]

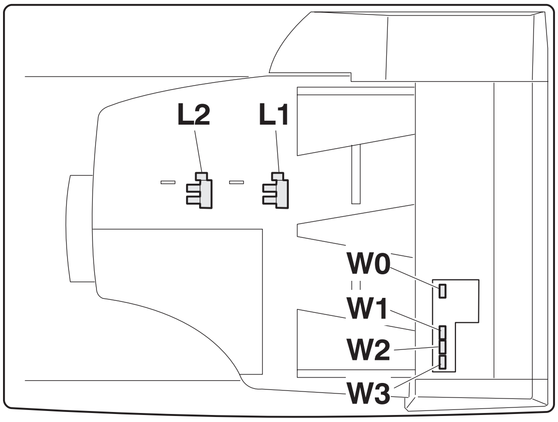
1) Document set (Document set sensor ON)
↓
2) Document size detection (Detects the document width with the document width sensors W1, W2, and W3 and the document length with the document length sensors L1 and L2.)
↓
3) Complex unit copy key ON
↓
4) RSPF motor ON
↓
5) Pickup solenoid ON
↓
6) Pickup roller and paper feed roller rotation
↓
7) The paper entry sensor detects presence of a document.
↓
8) PS roller rotation
↓
9) Copy operation (Document surface)
↓
10) Transport roller rotation
↓
11) Paper exit roller rotation
↓
12) The paper exit gate moves down. (The document is passed to the intermediate tray.)
↓
13) The reverse gate moves down.
↓
14) Paper exit roller reverse rotation (The document is passed to the reverse path.)
↓
15) The paper entry sensor detects presence of a document.
↓
16) PS roller rotation
↓
17) Copy operation (Document back surface copy)
↓
18) Transport roller rotation
↓
19) Paper exit roller rotation
↓
20) The paper exit gate moves down. (The document is passed to the intermediate tray.)
↓
21) The reverse gate moves down.
↓
22) Paper exit roller reverse rotation (The document is passed to the reverse path.)
↓
23) The paper entry sensor detects presence of a document.
↓
24) PS roller rotation
↓
25) Paper exit roller rotation
↓
26) The paper exit gate moves up.
↓
27) The document is passed to the paper exit tray.
↓
28) Next document → (YES) → Returns to 4).
↓ (NO)
29) RSPF motor OFF

c. Document size detection

<1> The document size is detected on the document set tray.

When a document is set on the document set tray with the paper/copy magnification ratio set in the auto mode, the document size is detected to operate the automatic selection function of paper and copy magnification ratio for the document size. When different sizes of documents are set in this detection method, the max. size of document is detected.

The document width is detected with the document width sensors (W1, W2, and W3), and the document length is detected with the document length sensors (L1 and L2) to determine the document size. Judgment of the document size is made at a timing after detecting the document with the document set sensor (W0).



Document width sensor			Document width sensor		AB series	Inch series
W1	W2	W3	L1	L2		
●	●	●	●	●	B5R	8.5 x 11R
❍	●	●	●	●	A5	5.5 x 8.5
—	❍	●	●	●	B5	8.5 x 11
—	—	❍	●	●	A4	8.5 x 11
●	●	●	❍	●	B5R	8.5 x 11R
❍	●	●	❍	●	A4R	8.5 x 11R
—	❍	●	❍	●	B4	11 x 17
—	—	❍	❍	●	A3	11 x 17
●	●	●	—	❍	B5R	8.5 x 14
❍	●	●	—	❍	A4R	8.5 x 14
—	❍	●	—	❍	B4	11 x 17
—	—	❍	—	❍	A3	11 x 17

[Note] Sensor: ON: ❍ OFF: ● Don't case: —

B. Disassembly/assembly/maintenance

(1) Maintenance-target parts in the RSPF section

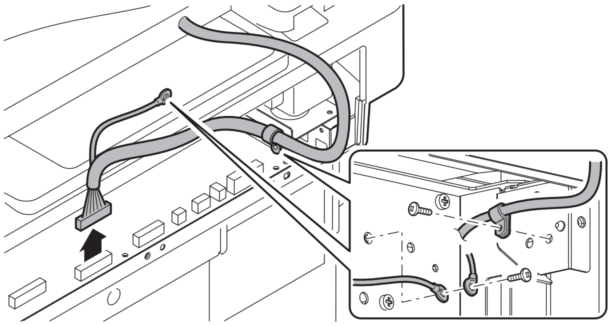
❍: Clean

No.	Part name	When calling	Remark
(1)	Pickup roller	❍	
(2) - 1	Separation unit	❍	Replacement when worn down
(2) - 2	Separation sheet	❍	
(3)	Paper feed roller	❍	
(4)	PS roller	❍	
(5)	Transport roller	❍	
(6)	Paper exit roller	❍	

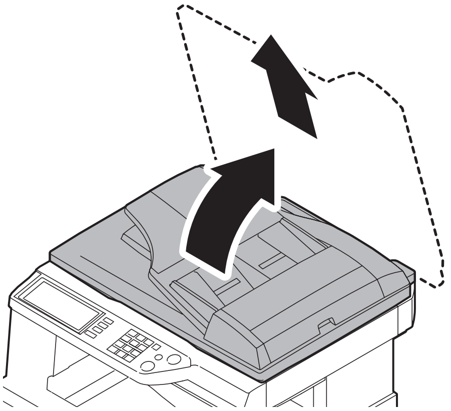
(2) Replacement procedures of maintenance parts and major parts

[RSPF unit]

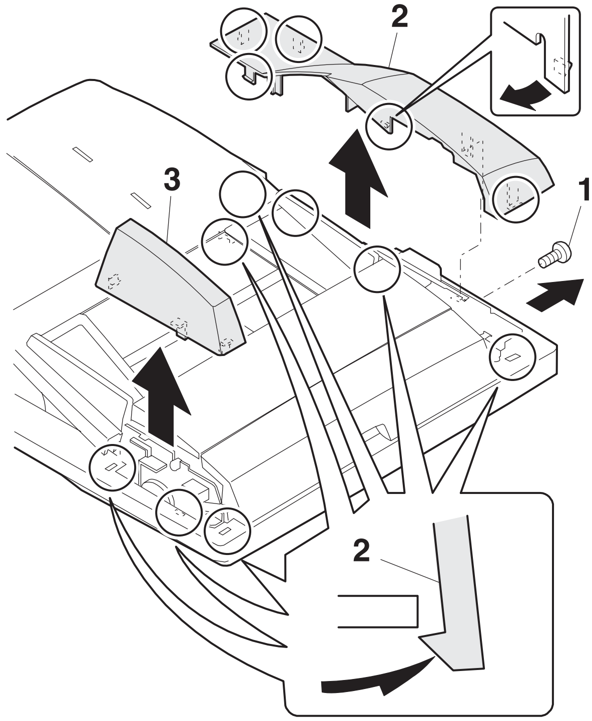
a. RSPF unit



Note: When installing, note that the grounding wire of the RSPF unit and that of the document detection unit are tightened together.



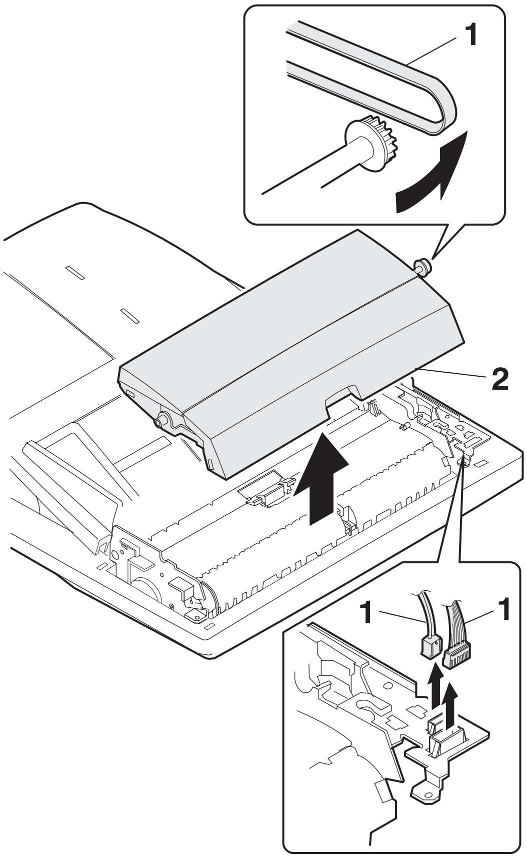
[External fitting]



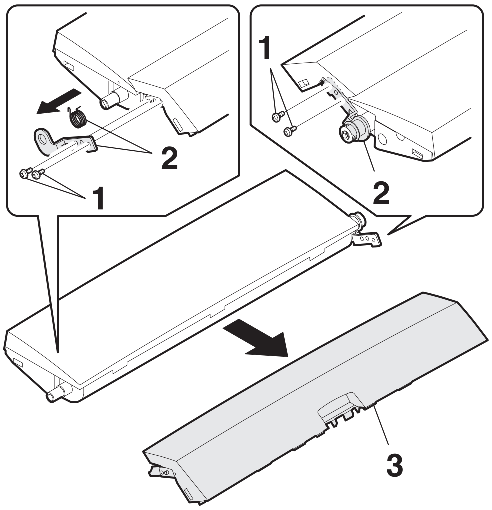
Note: Disengage the pawl in the arrow direction.

[Paper feed unit section]

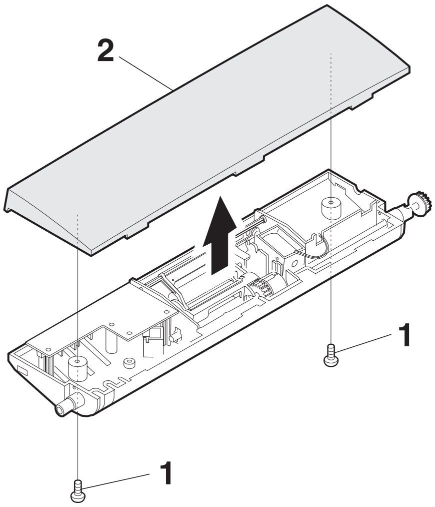
a. Paper feed unit



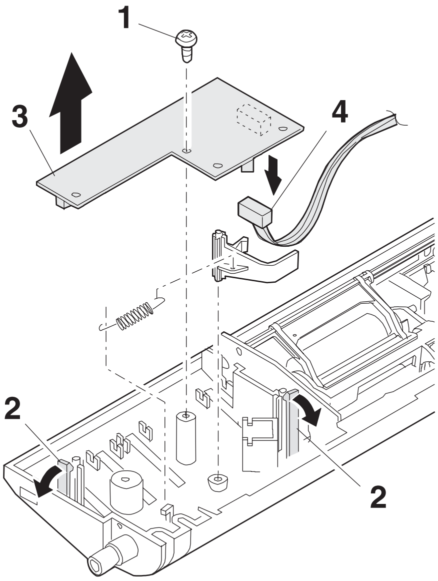
b. Document transport section cover



c. Document feed section cover

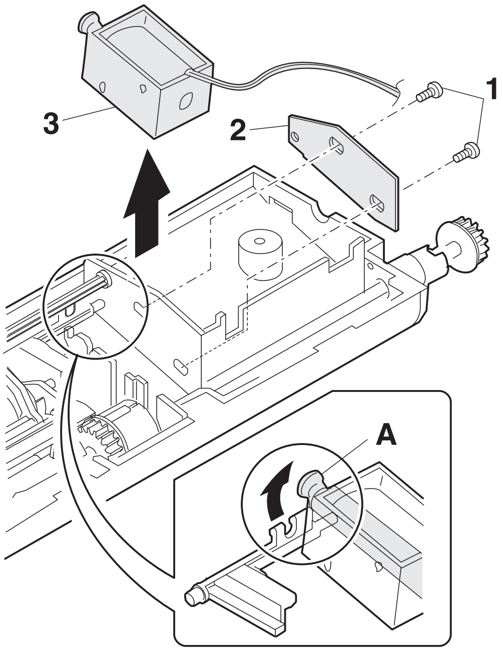


d. Sensor PWB

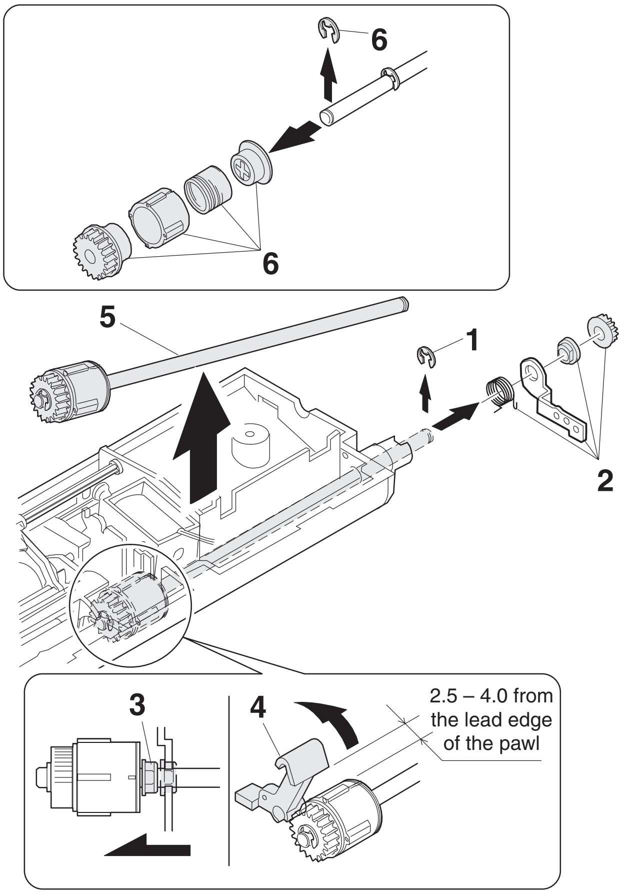


e. Pickup solenoid

Note: Remove section A of the pickup solenoid from the groove in the solenoid arm.



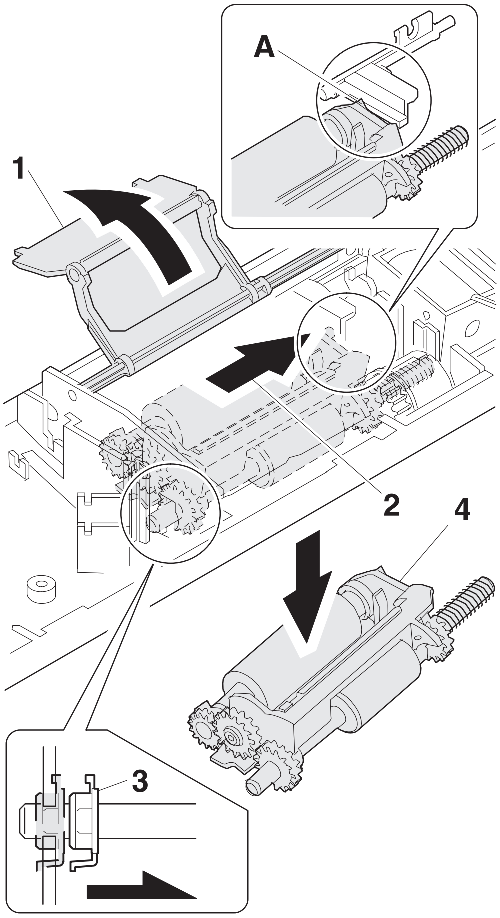
f. Clutch gear assembly parts



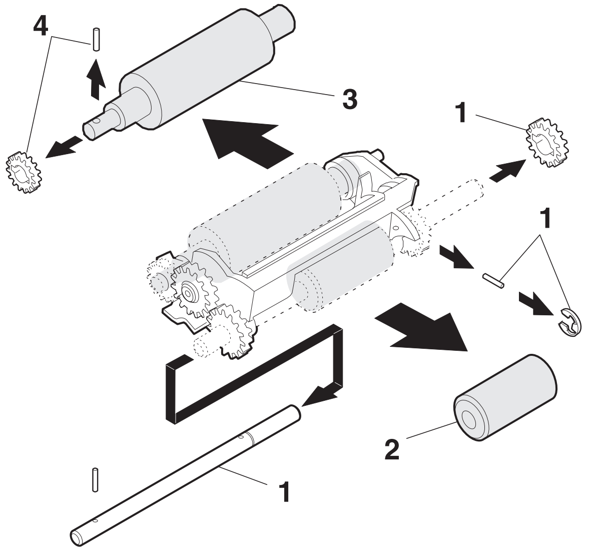
6
6
5
1
2
3
4
2.5 – 4.0 from
the lead edge
of the pawl

g. Pickup roller assembly parts

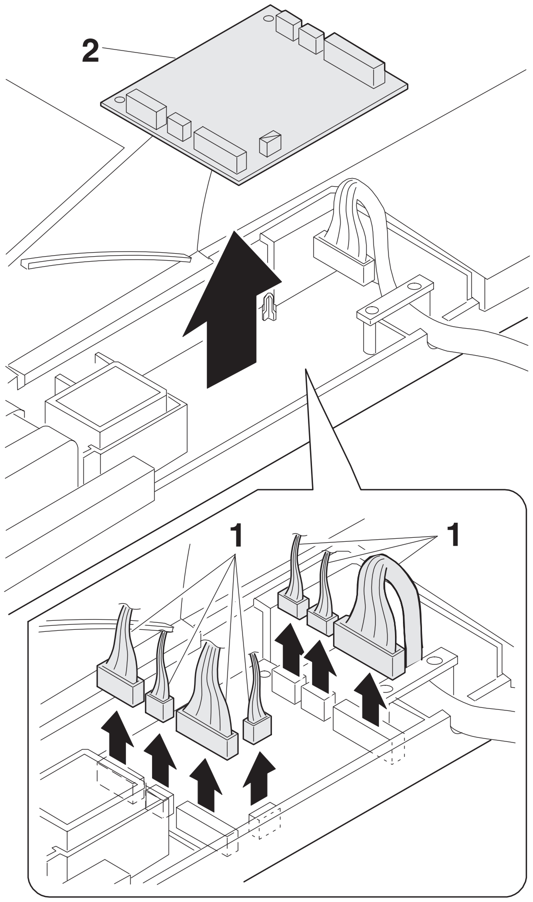
Note: When setting the pickup roller assembly 4, check to insure that the rib A is on the rib of the solenoid arm.



h. Pickup roller, paper feed roller

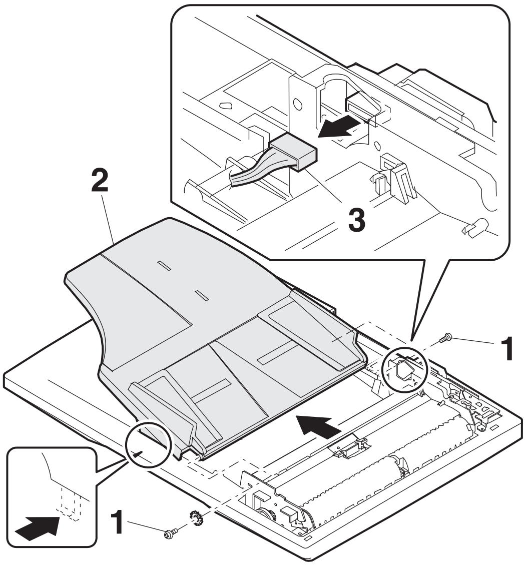


[Interface PWB]

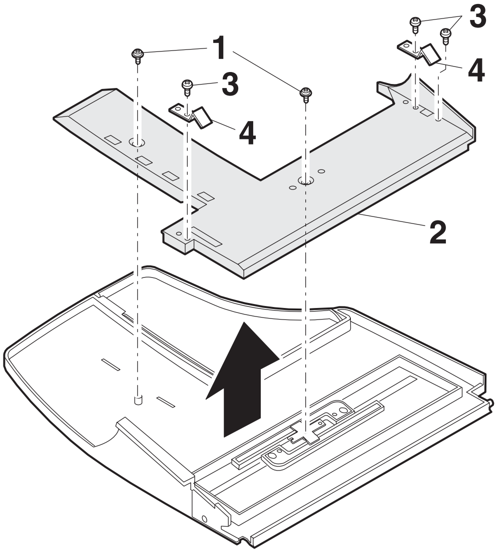


[Document tray section]

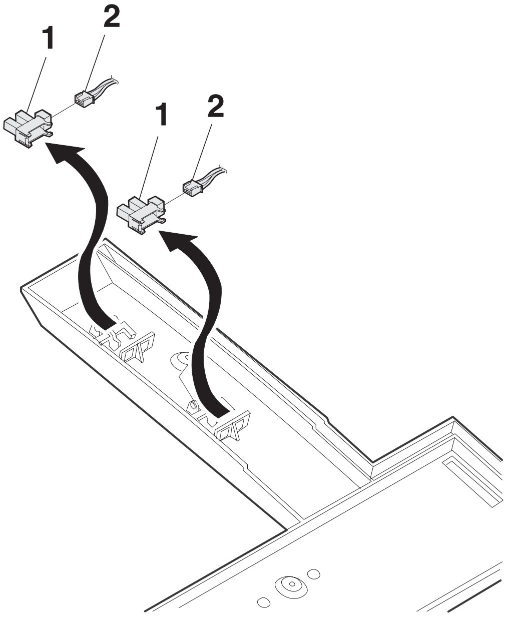
a. Document tray



b. Lack cover

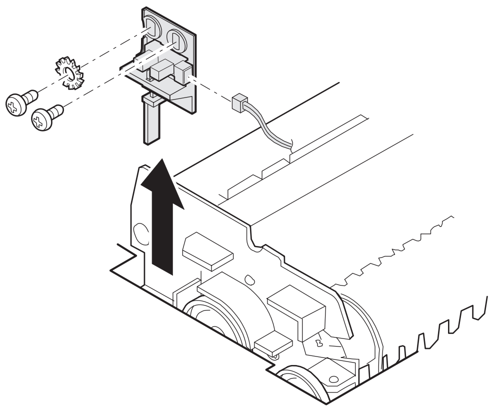


c. Document length detection SW

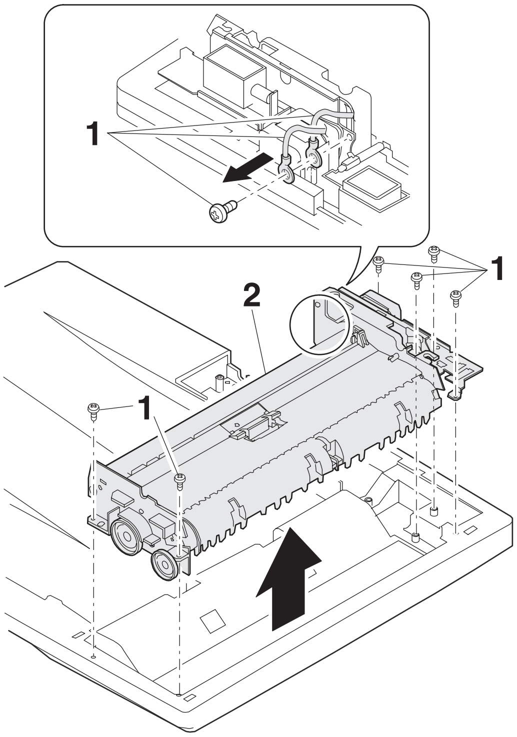


[Drive frame section]

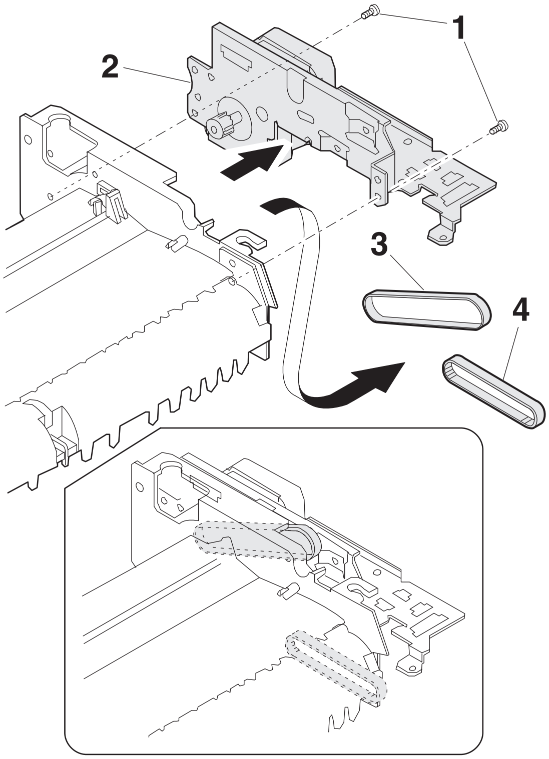
a. Book sensor



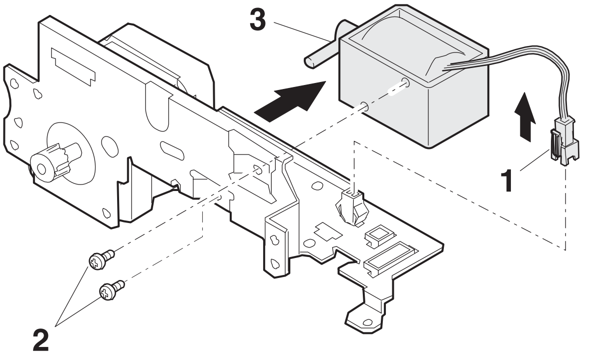
b. Drive frame unit



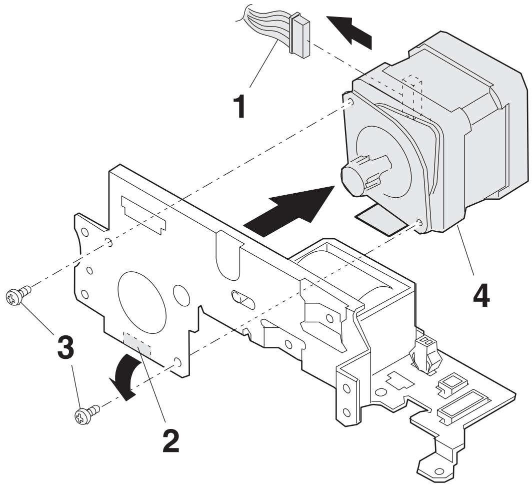
c. Drive frame assembly and drive belt



d. Pressure release solenoid



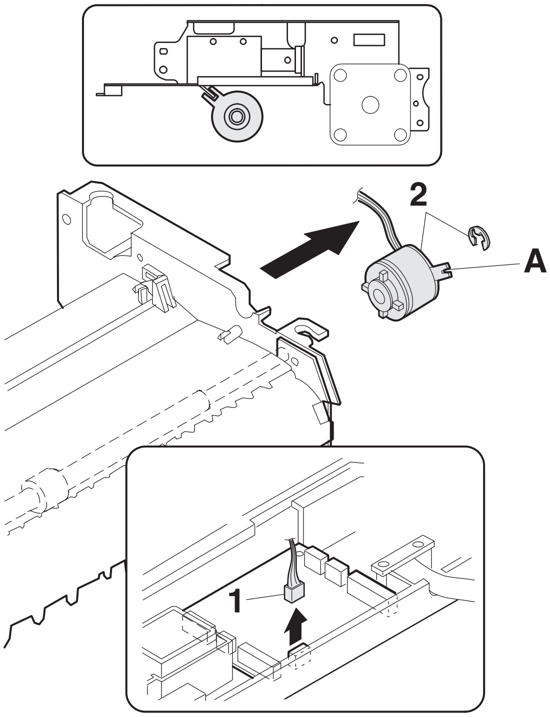
e. RSPF motor



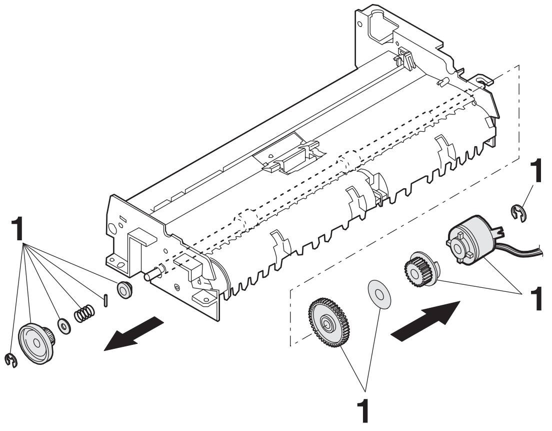
[Transport section]

a. Clutch

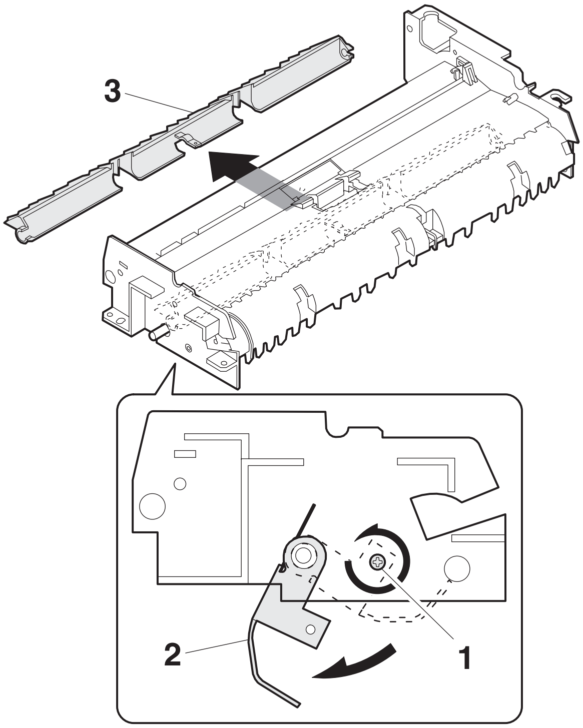
Note: When assembling, check to insure that the rib is in the groove A of the clutch and that it is fixed with the E-ring.



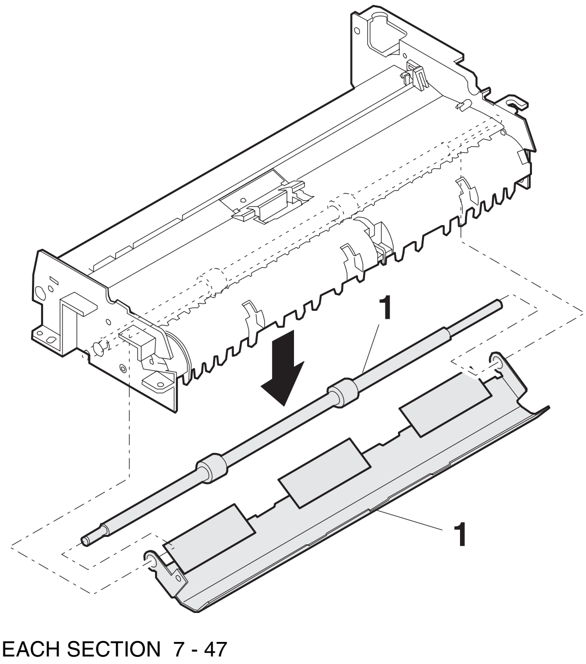
b. Transport roller gear



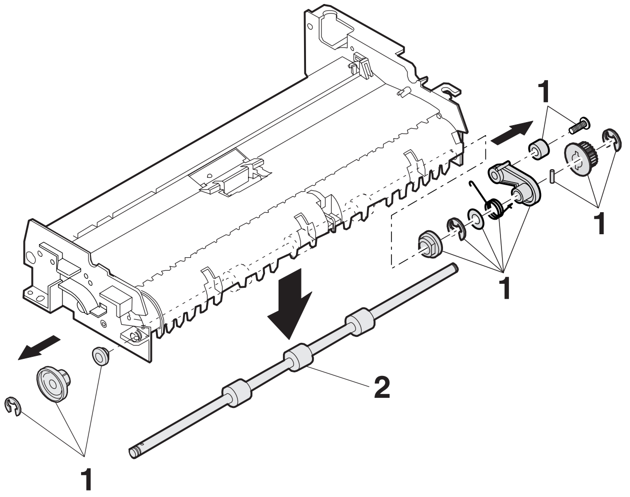
c. Reverse gate



d. Transport roller

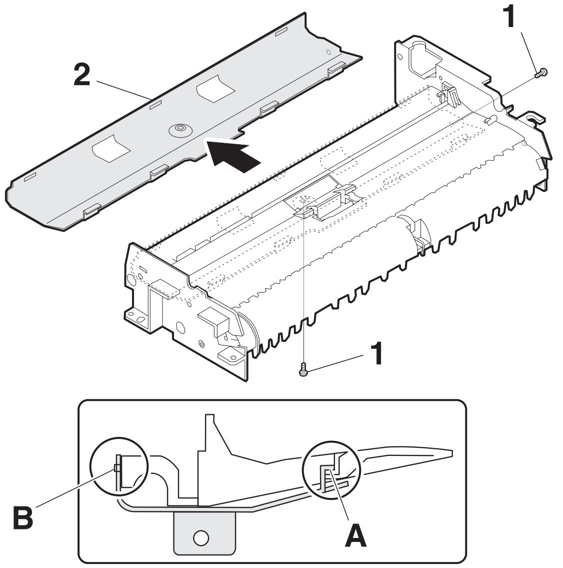


e. PS roller

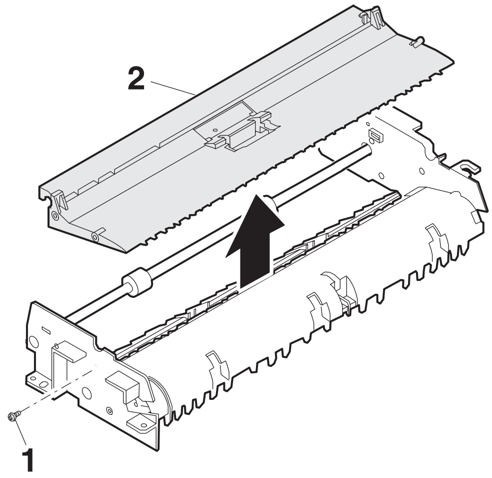


f. Paper feed paper guide lower

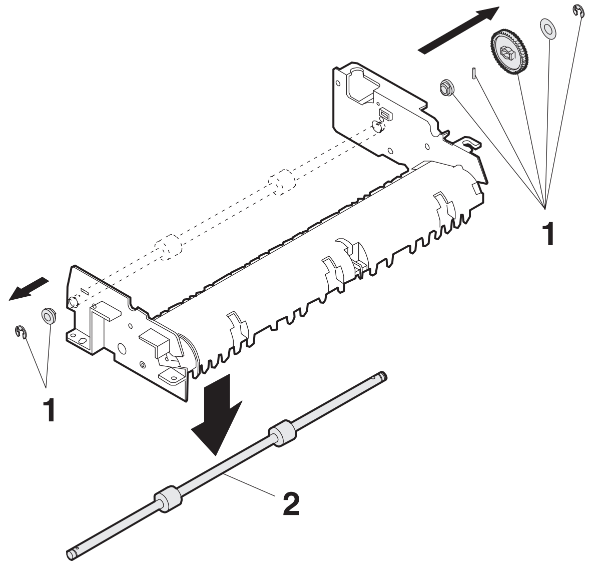
Note: When assembling, check to insure that the paper feed paper guide lower is set to the rib A and the boss B.



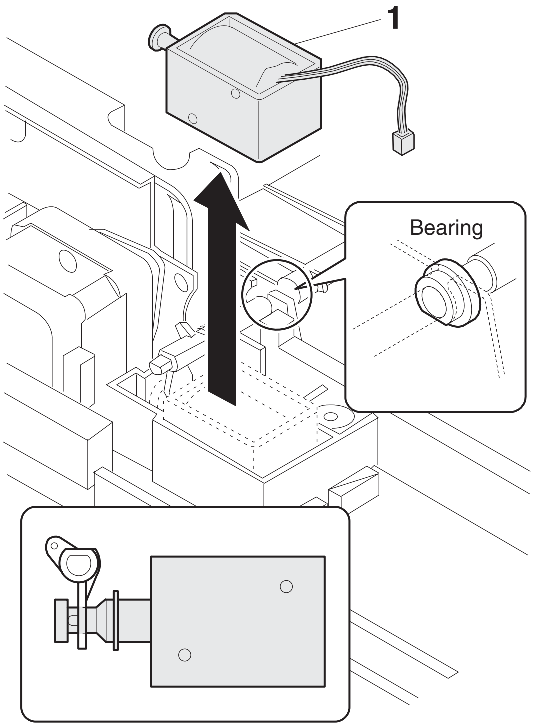
g. Paper feed paper guide upper



h. Paper exit roller



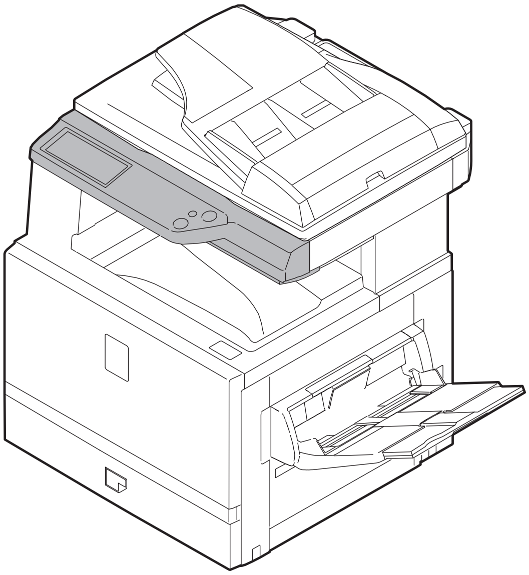
i. Gate solenoid



Note: When assembling, check to insure that the hook of the paper exit gate is set in the concave section of the solenoid.

When assembling, check to insure that the D-cut surface of the bearing faces downward.

7. Operation panel



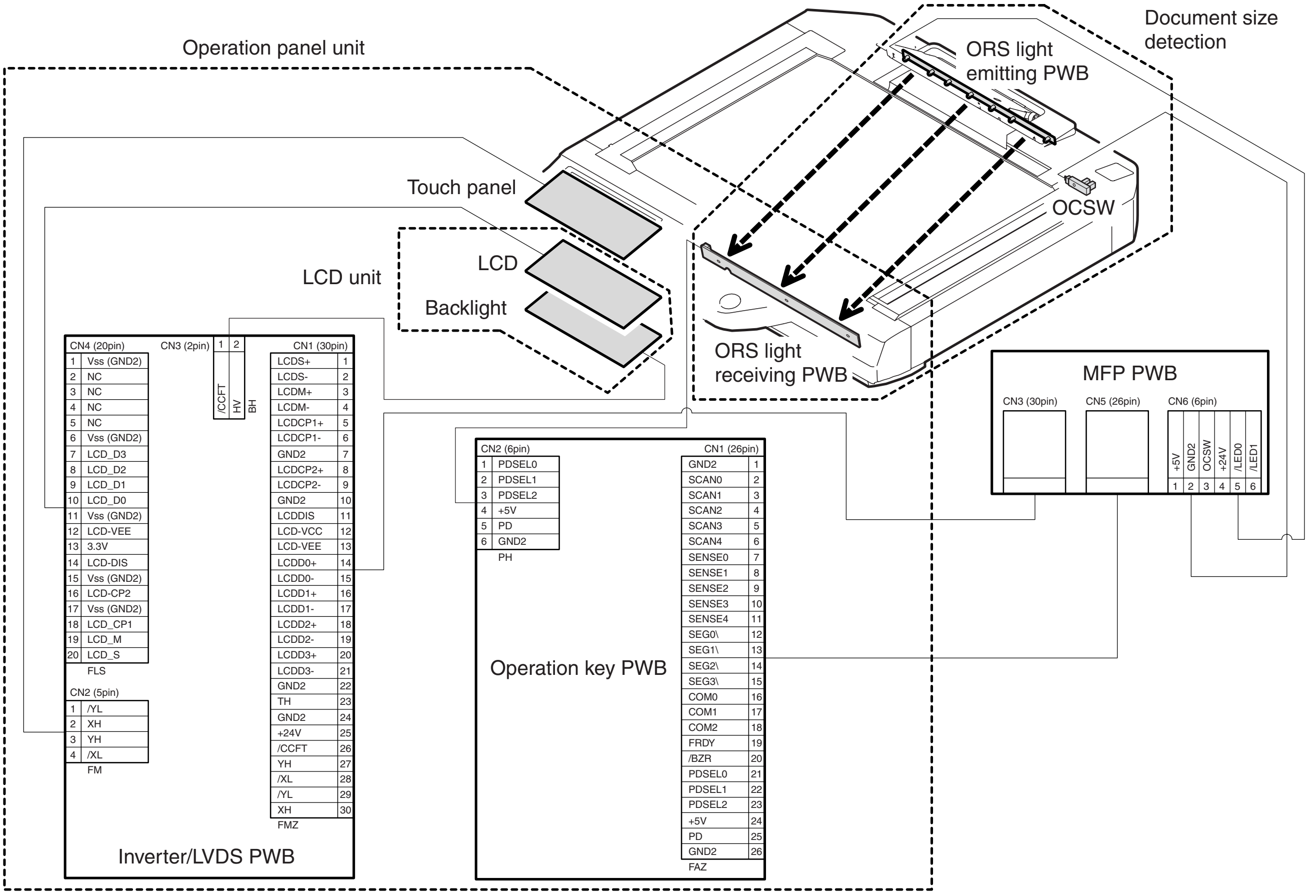
A. Operational descriptions

(1) Outline

The operation panel unit is composed of the operation key PWB, the inverter/LVDS PWB, the LCD unit, and the operation keys, and is used to operate the machine and to set and display the machine status.

The operation key PWB is connected to the ORS light receiving PWB for detecting the document size. It receives light from the ORS light emitting PWB attached to the rear frame, detecting the document size.

(2) Electrical section and mechanical section


Operation panel unit
Document size detection
ORS light emitting PWB
Touch panel
OCSW
LCD unit
LCD
Backlight
ORS light receiving PWB
MFP PWB
CN3 (30pin)
CN5 (26pin)
CN6 (6pin)
1 +5V
2 GND2
3 OCSW
4 +24V
5 /LED0
6 /LED1
CN4 (20pin)
1 Vss (GND2)
2 NC
3 NC
4 NC
5 NC
6 Vss (GND2)
7 LCD_D3
8 LCD_D2
9 LCD_D1
10 LCD_D0
11 Vss (GND2)
12 LCD-VEE
13 3.3V
14 LCD-DIS
15 Vss (GND2)
16 LCD-CP2
17 Vss (GND2)
18 LCD_CP1
19 LCD_M
20 LCD_S
FLS
CN2 (5pin)
1 /YL
2 XH
3 YH
4 /XL
FM
CN3 (2pin)
1 /CCFT
2 HV
BH
CN1 (30pin)
LCDS+ 1
LCDS- 2
LCDM+ 3
LCDM- 4
LCDCP1+ 5
LCDCP1- 6
GND2 7
LCDCP2+ 8
LCDCP2- 9
GND2 10
LCDDIS 11
LCD-VCC 12
LCD-VEE 13
LCDD0+ 14
LCDD0- 15
LCDD1+ 16
LCDD1- 17
LCDD2+ 18
LCDD2- 19
LCDD3+ 20
LCDD3- 21
GND2 22
TH 23
GND2 24
+24V 25
/CCFT 26
YH 27
/XL 28
/YL 29
XH 30
FMZ
Inverter/LVDS PWB
CN2 (6pin)
1 PDSEL0
2 PDSEL1
3 PDSEL2
4 +5V
5 PD
6 GND2
PH
CN1 (26pin)
GND2 1
SCAN0 2
SCAN1 3
SCAN2 4
SCAN3 5
SCAN4 6
SENSE0 7
SENSE1 8
SENSE2 9
SENSE3 10
SENSE4 11
SEG0\ 12
SEG1\ 13
SEG2\ 14
SEG3\ 15
COM0 16
COM1 17
COM2 18
FRDY 19
/BZR 20
PDSEL0 21
PDSEL1 22
PDSEL2 23
+5V 24
PD 25
GND2 26
FAZ
Operation key PWB

(3) major parts functions and operations

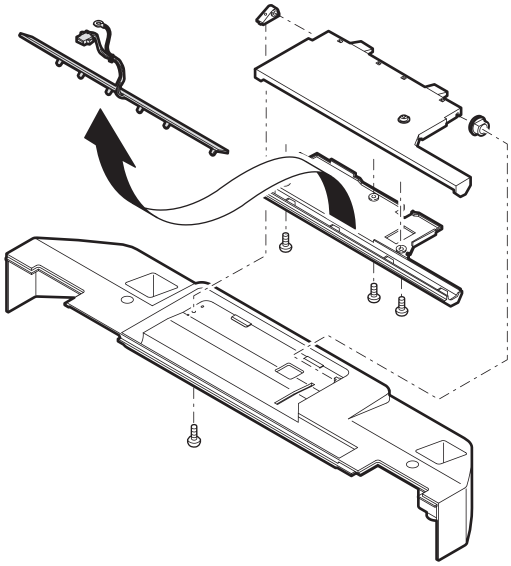
No.	Name	Code, signal name	Function
RW	Operation key PWB	—	Detects a pressed key on the operation panel.
RW	Inverter/LVDS PWB	—	Drives the LCD and the backlight, and controls the touch panel.
RW	ORS light receiving PWB	—	Receives light from the ORS light emitting PWB to detect the document size.
RW	ORS light emitting PWB	—	Emits light for detecting the document size.
RW	OC switch	OCSW	Timing switch for detecting the document size

RW: Abbreviation of Related Wiring, which means the said load is specified in the related figure of the mechanical and the electrical sections.

B. Disassembly/assembly/maintenance

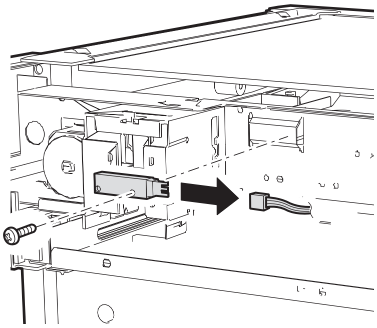
a. ORS light emitting PWB

1) Remove the upper cabinet rear cover and the upper cabinet rear unit.
2) Remove the screw, and remove the document size sensor unit. Remove the screw and the document size sensor, and remove the ORS light emitting PWB.



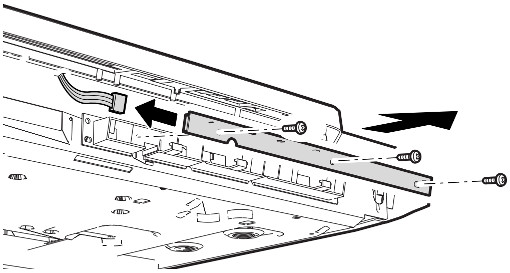
b. OCSW

1) Remove the upper cabinet rear cover and the upper cabinet rear unit.
2) Remove the connector and the screw, and remove the OCSW.



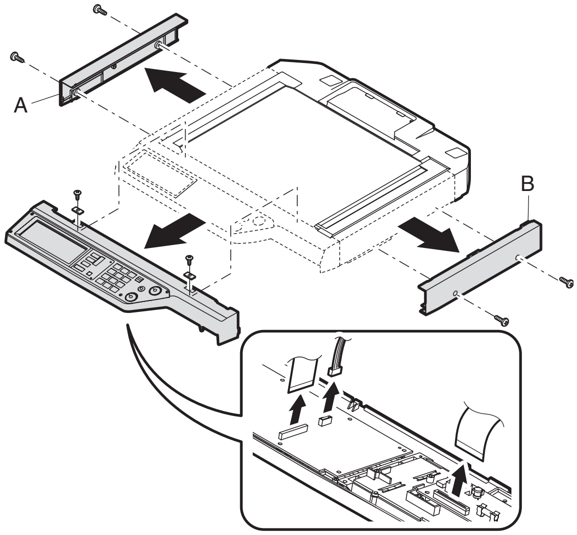
c. ORS light receiving PWB

1) Remove the FD connection cabinet, the front cabinet upper, the FD paper exit port cabinet, and the operation panel plate.
2) Remove the connector and the screw, and remove the ORS light receiving PWB.

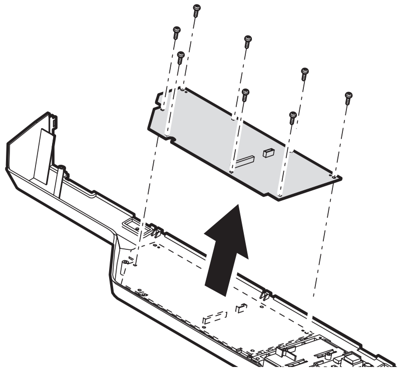


d. Operation key PWB

1) Remove the FD connection cabinet, the front cabinet upper, the FD paper exit port cabinet, and the operation panel plate.
2) Remove the screw, and remove A and B.
3) Remove the screw and the connector, and remove the operation unit.

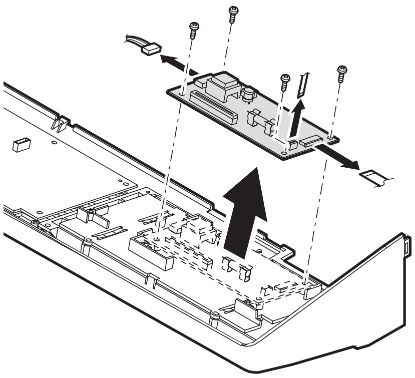


4) Remove the screw and remove the operation key PWB.



e. Inverter/LVDS PWB

1) Remove the FD connection cabinet, the front cabinet upper, the FD paper exit port cabinet, the operation panel plate, and the operation panel unit.
2) Remove the connector and the screw, and remove the inverter/LVDS PWB.

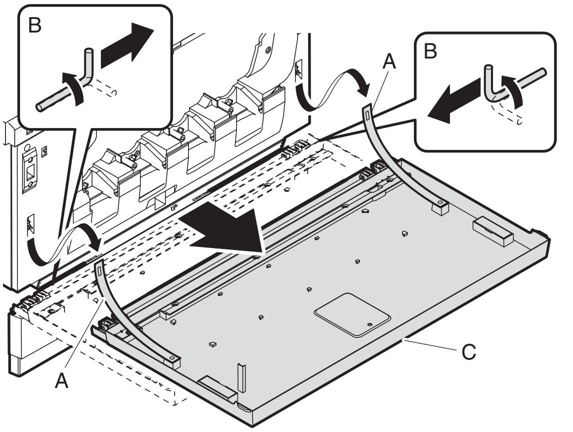


8. External fitting

A. Disassembly

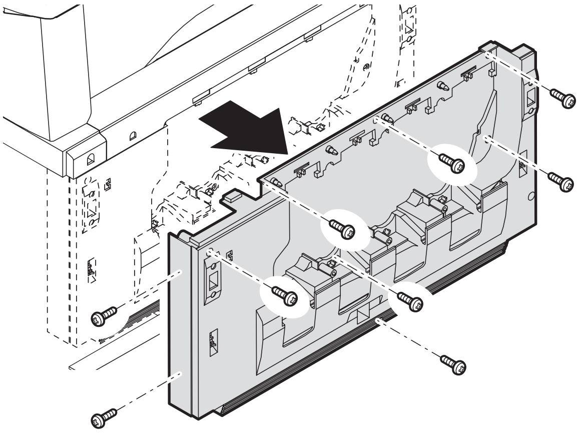
(1) Cabinet disassembly 1

1) Open the front cabinet.
2) Remove the front cabinet band. Pull out the slide pin (B), and remove the front cabinet (C).



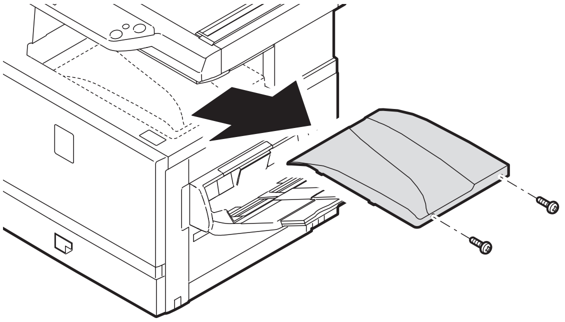
(2) Cabinet disassembly 2

1) Remove the front cabinet.
2) Open the left cabinet. Remove the screw and remove the front frame cover.



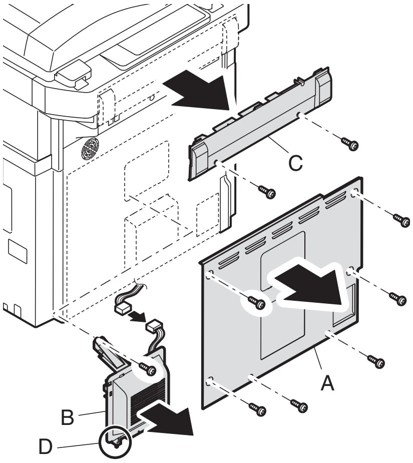
(3) Cabinet disassembly 3

1) Remove the screw, and slide the paper exit tray cabinet right to the right to remove.



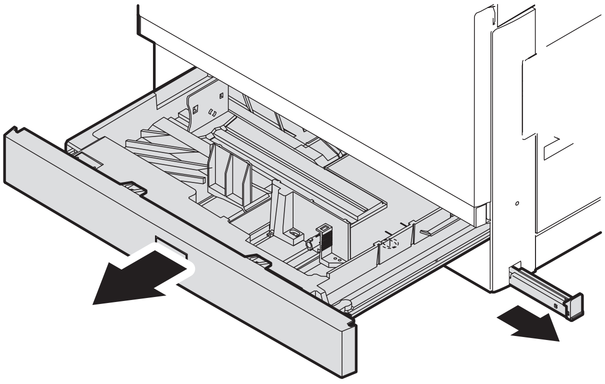
(4) Cabinet disassembly 4

1) Remove the screw, and remove the rear cabinet (A). Remove the screw, and remove the DC power CFM unit (B) and the connector. Remove the screw, and remove the upper cabinet rear cover (C).
   - ∗ When assembling, insert the boss in section D into the hole in the frame.

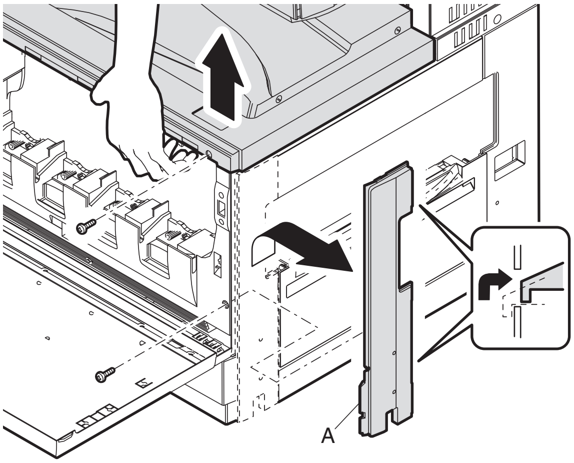


(5) Cabinet disassembly 5

1) Remove the manual paper feed unit.
2) Pull out the cassette and the knob.

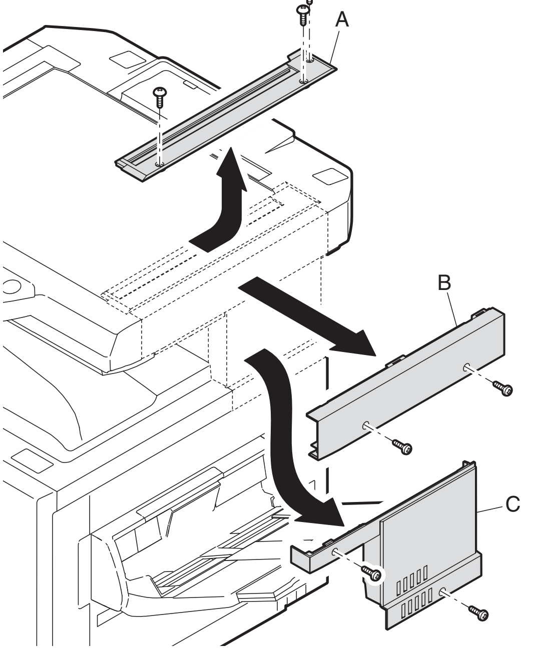


3) Open the front cabinet.
4) Remove the screw.
5) Lift the cabinet, and slide and remove the front right cabinet (A) upward.



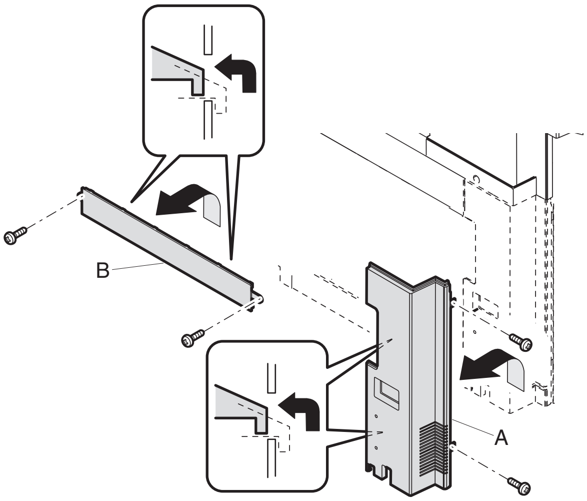
(6) Cabinet disassembly 6

1) Remove the screws, and remove the glass holder right (A).
2) Remove the screws, and remove the scanner right cabinet (B).
3) Remove the screws, and remove the connection right cabinet (C).



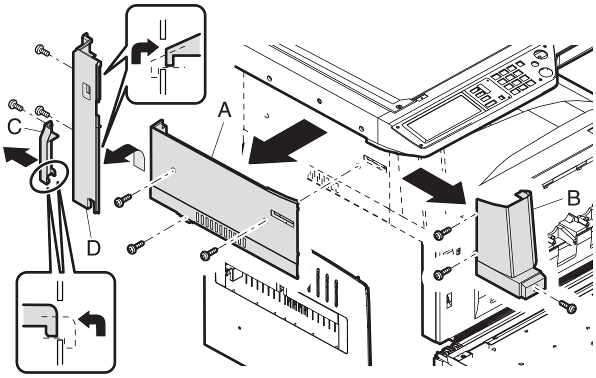
(7) Cabinet disassembly 7

1) Remove the rear cabinet.
2) Remove the manual paper feed unit.
3) Remove the front right cabinet.
4) Remove the screws, and slide and remove the rear right cabinet (A) upward.
5) Remove the screws, and slide and remove the right lower cabinet (B) upward.



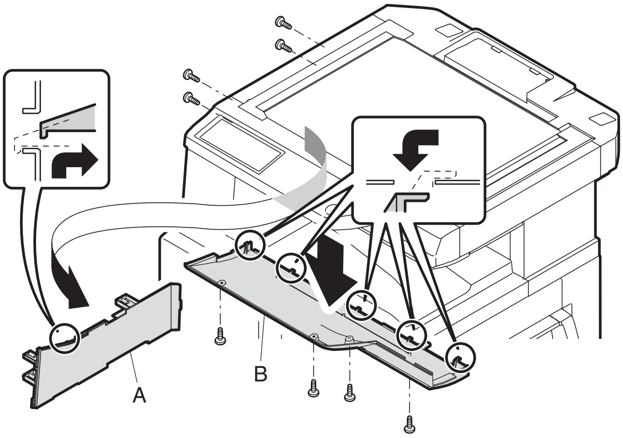
(8) Cabinet disassembly 8

1) Remove the rear cabinet.
2) Remove the screws, and remove the FD connection cabinet (A) and the front cabinet upper (B). Remove the screws, and slide and remove the rear left cabinet cover (C) and the rear left cabinet (D) upward.



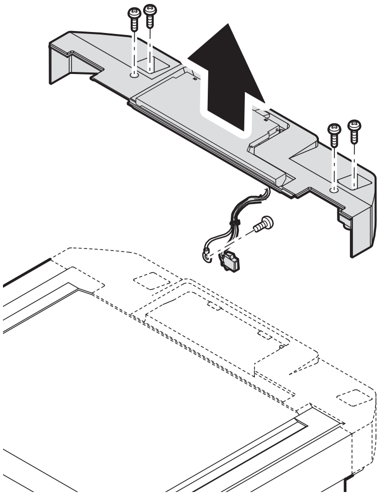
(9) Cabinet disassembly 9

1) Remove the screws, and remove the FD paper exit port cabinet (A) and the operation panel plate (B).



(10) Cabinet disassembly 10

1) Remove the screw, and remove the upper cabinet rear cover. Remove the connector and the screw, and remove the upper cabinet rear unit.



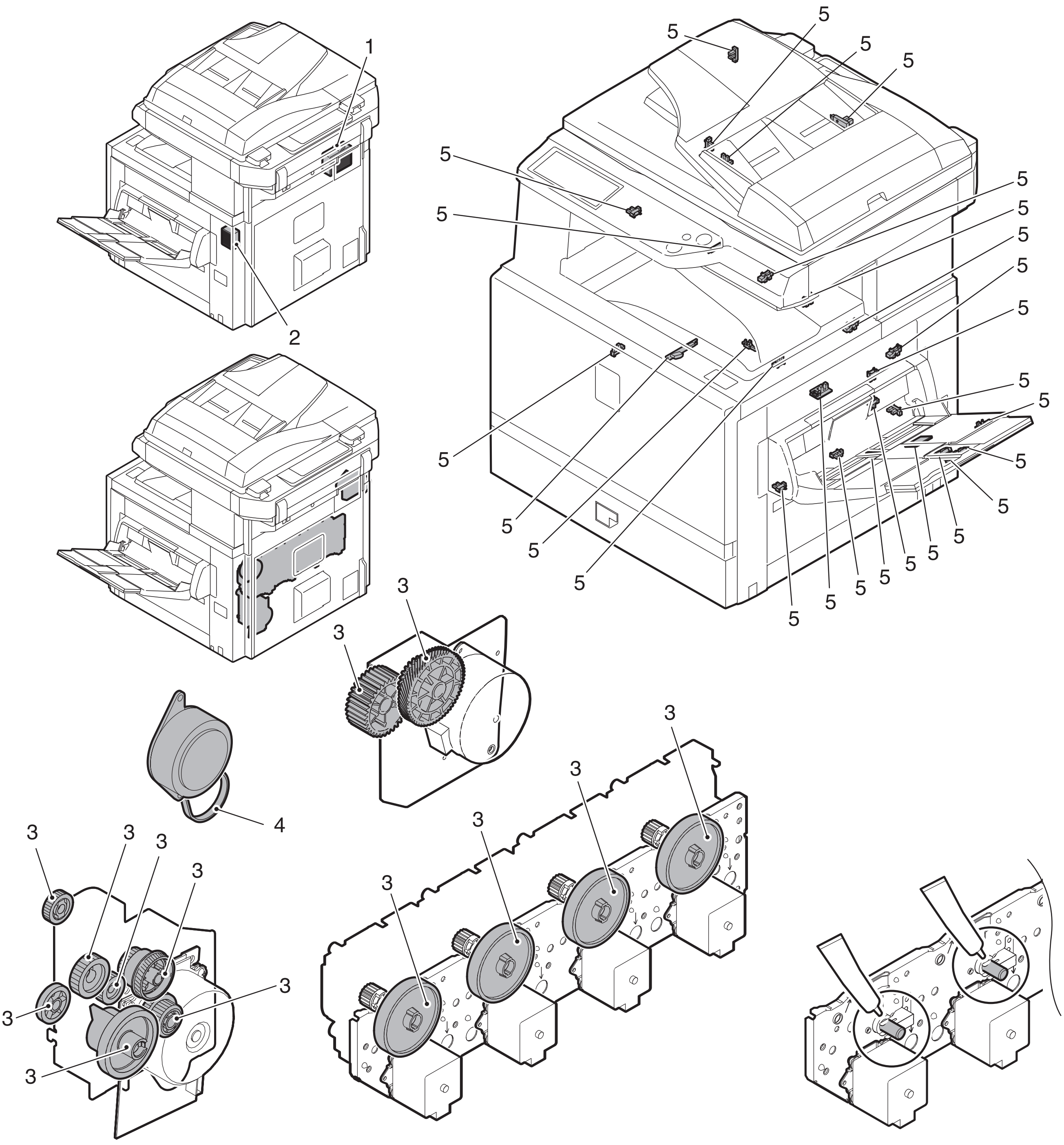
9. Others

A. Disassembly/assembly/maintenance

(1) Maintenance target parts

✕: Check (Clean, replace, or adjust as necessary.) ❍: Clean ▲: Replace ∆: Adjust ☆: Lubricate ❏: Shift position

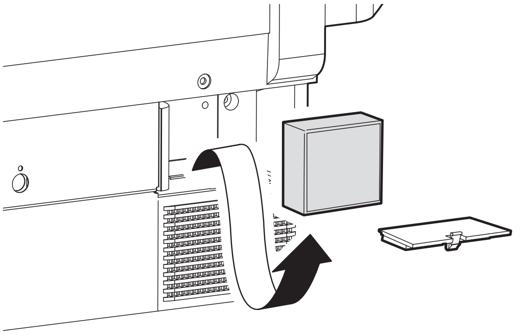
Unit name	No.	Part name	When calling	50K	100K	150K	200K	250K	300K	350K	400K	Remark
Filters	1	Ozone filter	✕	▲	▲	▲	▲	▲	▲	▲	▲	
	2	Sub ozone filter	✕	▲	▲	▲	▲	▲	▲	▲	▲	
Drive section	3	Gears	☆	☆	☆	☆	☆	☆	☆	☆	☆	
	4	Belts	✕	✕	✕	✕	✕	✕	✕	✕	✕	
Others	5	Sensors	✕		✕		✕		✕		✕	



(2) Maintenance parts and major parts replacement

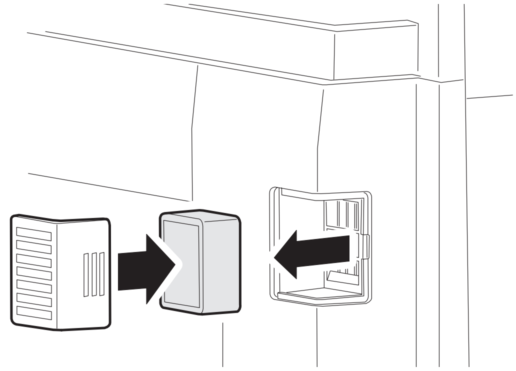
a. Ozone filter

1) Remove the ozone filter cover, and remove the ozone filter.



b. Sub ozone filter

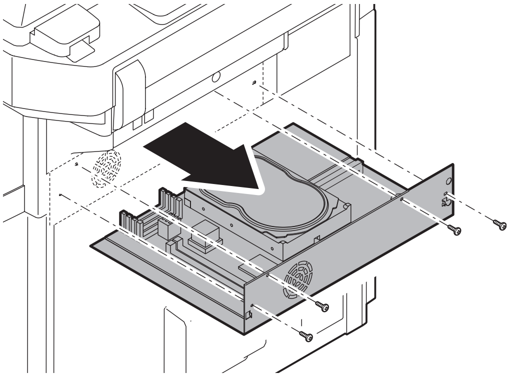
1) Remove the sub ozone filter cover, and remove the sub ozone filter.



c. Printer controller PWB

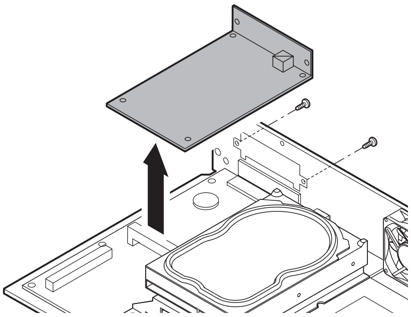
<1> Printer controller unit

1) Remove the screws, and remove the printer controller unit.



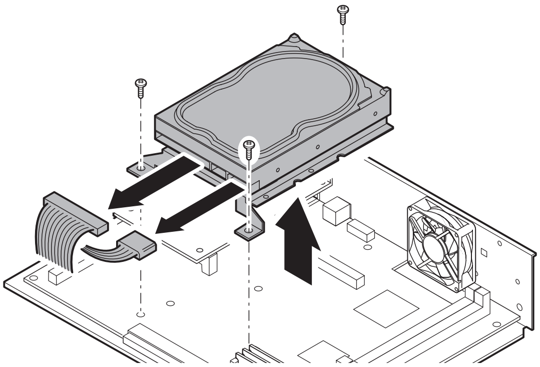
<2> Network PWB

1) Remove the screws, and remove the network PWB.

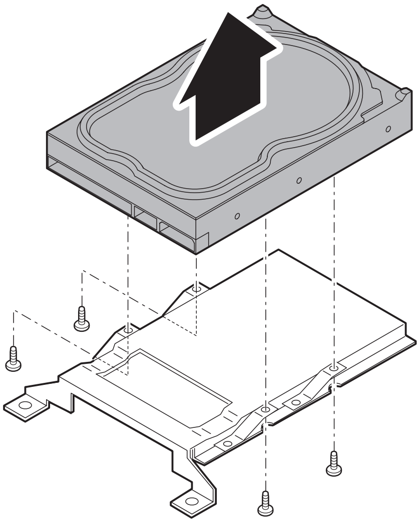


<3> HDD

1) Remove the connector and the screws, and remove the HDD unit.

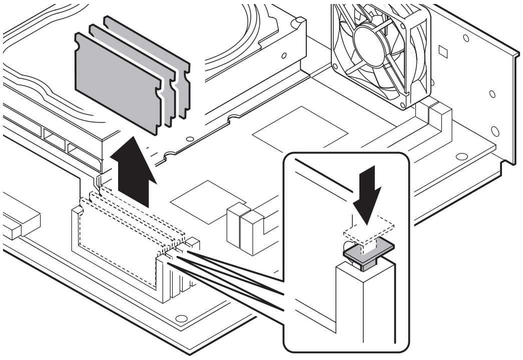


2) Remove the screws, and remove the HDD.



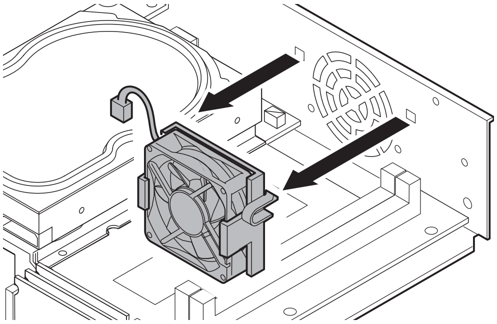
<4> FLASH PWB

1) Release lock, and remove the FLASH PWB.



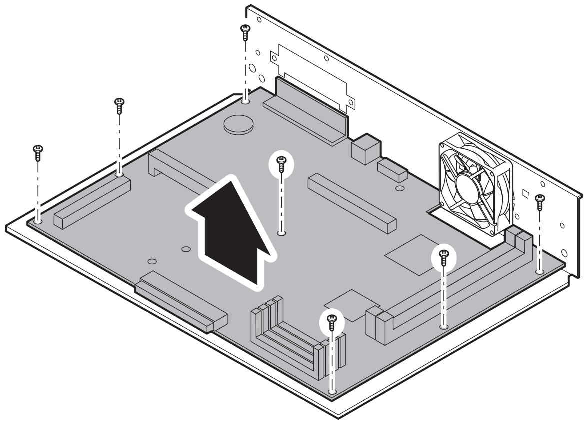
<5> Fan

1) Remove the connector, and remove the fan.



<6> PRT control PWB

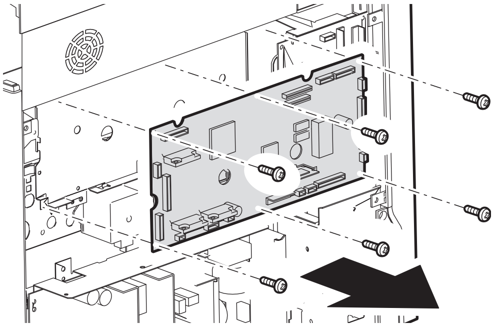
1) Remove the screw, and remove the PRT control PWB.



d. PWB

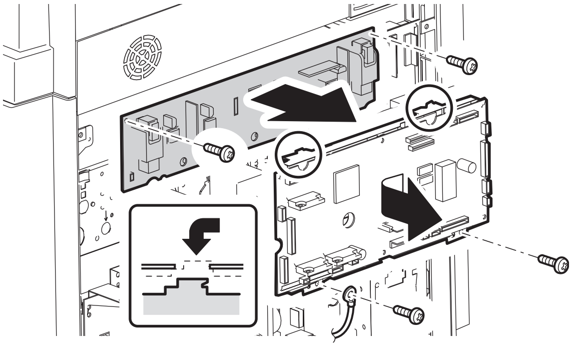
<1> PCU PWB

1) Remove the rear cabinet.
2) Remove the connector and the screw, and remove the PCU PWB.



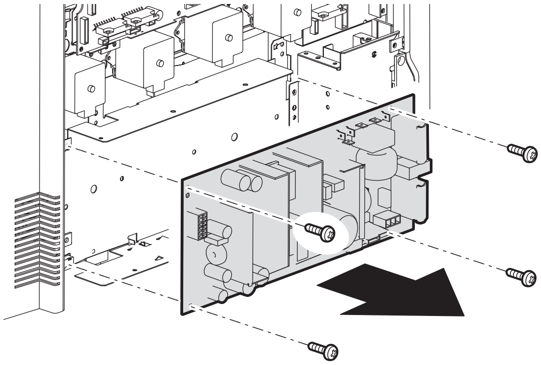
<2> High voltage MC power PWB

1) Remove the rear cabinet.
2) Remove the connector, the screw, and the earth wire (commonly fixed), and remove the PCU PWB unit.
3) Remove the connector and the screw, and remove the high voltage MC power PWB.



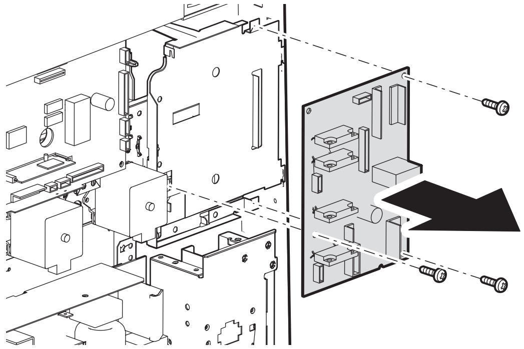
<3> Power PWB

1) Remove the rear cabinet and the DC power CFM unit.
2) Remove the connector and the screw, and remove the power PWB.



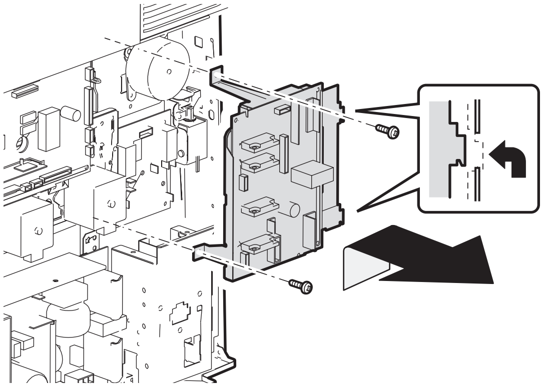
<4> Driver PWB

1) Remove the rear cabinet, the rear left cabinet lid, and the rear left cabinet.
2) Remove the screw and the connector, and remove the driver PWB.

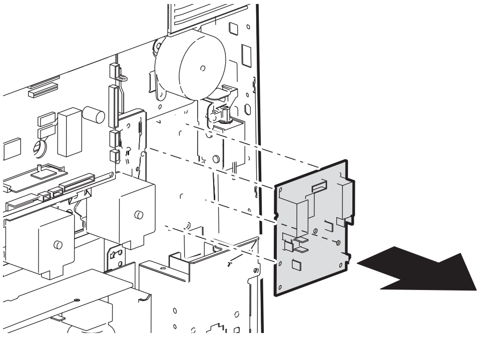


<5> AC PWB

1) Remove the screw, the rear cabinet, the rear left cabinet lid, and the rear left cabinet.
2) Remove the screw and the harness, and remove the driver PWB unit.

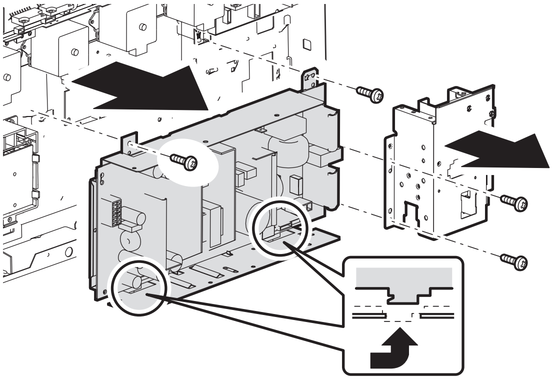


3) Remove the harness and remove the AC PWB from the supporter.

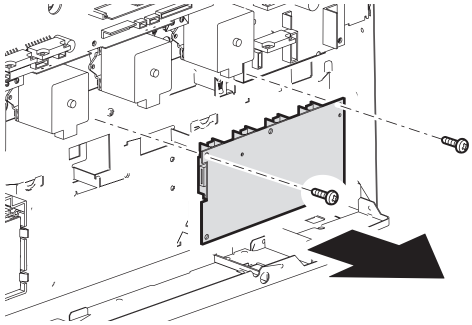


<6> High voltage TC power PWB

1) Remove the rear cabinet, the DC power CFM unit, the rear left cabinet lid, and the rear left cabinet.
2) Remove the connector, the harness, and the screw. Remove the Power PWB unit.

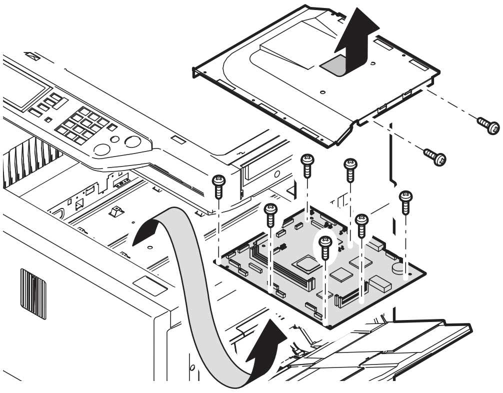


3) Remove the connector and the screw, and remove the high voltage TC power PWB.



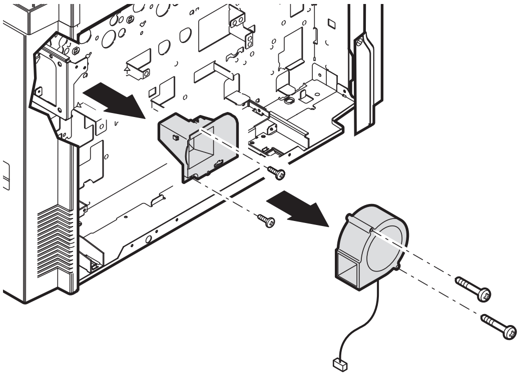
<7> ICU PWB

1) Remove the paper exit tray cabinet right.
2) Remove the screw, and remove the box cover. Remove the screw, and remove the ICU PWB.

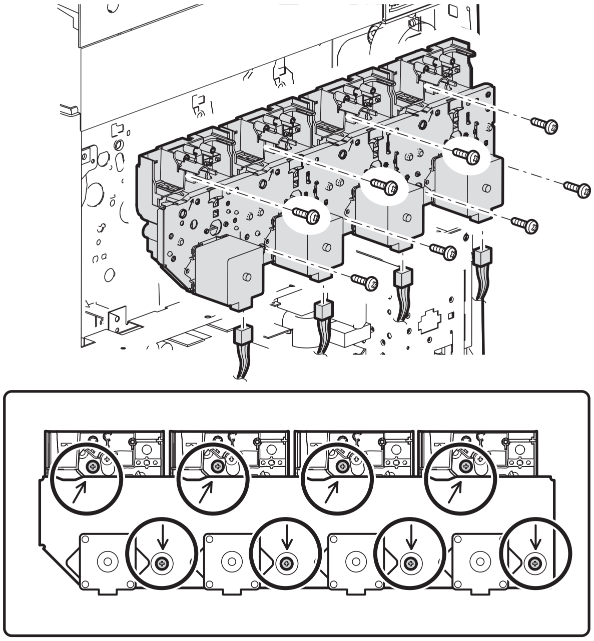


<8> Drum drive unit

1) Remove the rear cabinet.
2) Remove the DC power CFM unit.
3) Remove the driver PWB unit.
4) Remove the PCU PWB unit.
5) Remove the screw and the connector, and remove the intake duct FAN.
6) Remove the screw and the intake duct.



7) Remove the high voltage MC PWB.
8) Remove the connector screw and the drum drive unit.
   - * Remove the eight screws which are indicated with an arrow mark on the plate drive frame and are fixing the resin drive frame.
     (Never remove the screws which are fixing the plate drive frame upper.)



[8] SETTING AND ADJUSTMENTS

Each adjustment item in the adjustment item list is indicated with its JOB number.
Perform the adjustment procedures in the sequence of Job numbers from the smallest to the greatest.
However, there is no need to perform all the adjustment items. Perform only the necessary adjustments according to the need.
Unnecessary adjustments can be omitted. Even in this case, however, the sequence from the smallest to the greatest JOB number must be observed.
If the above precaution should be neglected, the adjustment would not complete normally or a trouble may occur.

JOB No	ADJUSTMENT ITEM LIST			SIMULATION
ADJ 1	High voltage adjustment	ADJ 1A	Main charger grid voltage adjustment	8-2
		ADJ 1B	DV bias voltage adjustment	8-1
		ADJ 1C	Transfer voltage adjustment	8-6
ADJ 2	Image density sensor adjustment	ADJ 2A	Color image density sensor adjustment (adjustment by the adjustment jig)	44-13
		ADJ 2B	Black image density sensor adjustment	44-2
ADJ 3	Image focus, image skew adjustment (LED (writing) unit)			64-1/61-4
ADJ 4	Image registration adjustment	ADJ 4A	Image registration adjustment (Auto adjustment)	50-22
		ADJ 4B	Image registration adjustment (Manual adjustment)	50-20
ADJ 5	Image position/print area adjustment (Print engine section)	ADJ 5A	Main scanning direction image position adjustment (Print engine section)	50-10
		ADJ 5B	Sub scanning direction image position/print area adjustment (Print engine section)	50-5
ADJ 6	Copy image distortion adjustment	ADJ 6A	Scanner (reading) unit parallelism adjustment	
		ADJ 6B	Copy image sub scanning direction distortion adjustment	
		ADJ 6C	Copy image main scanning direction distortion adjustment	
		ADJ 6D	Scan image distortion adjustment	
ADJ 7	Copy image focus (main scanning direction copy magnification ratio) adjustment (CCD unit position adjustment)			48-1
ADJ 8	Sub scanning direction copy magnification ratio adjustment			48-1
ADJ 9	Main scanning direction copy image position adjustment (Scanner (reading) section)			50-12
ADJ 10	Copy image position/image loss/void area adjustment			50-1/50-2
ADJ 11	Copy color balance/density adjustment	ADJ 11A	CCD gamma adjustment (CCD calibration) (Normal document copy mode)	63-3 (63-5)
		ADJ 11B	Copy color balance adjustment (Auto adjustment)	46-24
		ADJ 11C	Copy color balance adjustment (Manual adjustment)	46-21
		ADJ 11D	Copy density adjustment in low-density area (Normally unnecessary to adjust.)	46-1/2
		ADJ 11E	Copy color balance density adjustment (each copy mode) (Normally unnecessary to adjust.)	46-10 to 16
		ADJ 11F	CCD gamma adjustment (CCD calibration) (Copy document copy mode)	63-9
		ADJ 11G	Image edge section gamma/density adjustment (Black text and black line reproduction adjustment) (Normally unnecessary to adjust.)	46-27
		ADJ 11H	Copy color balance adjustment (Single color Copy mode) (Normally unnecessary to adjust.)	46-25
		ADJ 11I	Auto color balance adjustment by user (Copy color balance auto adjustment enable setting and adjustment)	26-53
		ADJ 11J	Background process conditions setting in the color auto copy mode, image auto recognition conditions setting, text-on-dot recognition conditions setting, filter setting	46-33
ADJ 12	Fusing pressure adjustment			
ADJ 13	Fusing paper guide position adjustment			
ADJ 14	Document size sensor adjustment	ADJ 14A	Original size sensor detection point adjustment	41-2
		ADJ 14B	Original size sensor sensitivity adjustment	41-2
ADJ 15	Manual paper feed tray paper size sensor adjustment			40-2
ADJ 16	Touch panel coordinates setting			65-1
ADJ 17	Power voltage adjustment	ADJ 17A	3.4 V power voltage adjustment	
		ADJ 17B	5.0 V power voltage adjustment	
ADJ 18	FAX/scanner mode image loss adjustment			50-27
ADJ 19	RSPF scanning position automatic adjustment	ADJ 19A	RSPF scanning position automatic adjustment	53-8
		ADJ 19B	RSPF image lead edge adjustment	50-6
ADJ 20	RSPF lead edge skew adjustment			
ADJ 21	Collective adjustment of image position and magnification ratio	(∗1)		50-28

∗1: By executing the collective adjustment of image position and magnification ratio (ADJ21) (Automatic void adjustment SIM50-28), the adjustments of SIM50-10, 48-1, 50-12, and 50-1 can be simply and automatically performed at once.

ADJ 1 High voltage adjustment

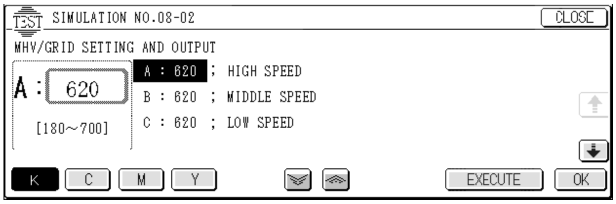
Since the output voltage cannot be checked directly due to the machine structure, the adjustment value of the simulation is set to the default (specified value) to perform the adjustment.

ADJ 1A Main charger grid voltage adjustment

This adjustment must be performed in the following cases:

- When the high voltage power PWB is replaced.
- When a U2 trouble occurs.
- When the PCU PWB is replaced.
- When the EEPROM of the PCU PWB is replaced.

1) Enter the SIM 8-2 mode.



SIMULATION NO.08-02

MHV/GRID SETTING AND OUTPUT

A : 620

[180～700]

A : 620 ; HIGH SPEED

B : 620 ; MIDDLE SPEED

C : 620 ; LOW SPEED

SIM 8-2

2) Select the output mode to be adjusted with the color key and scroll key.

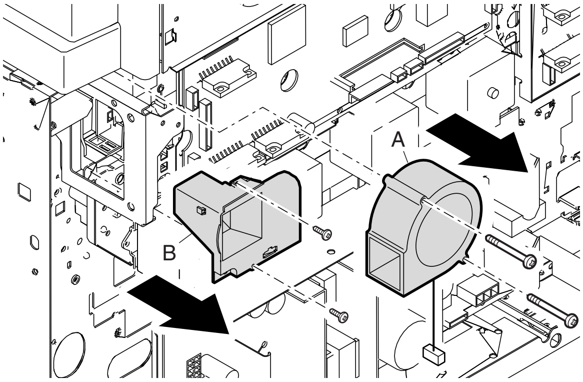
3) Enter the adjustment value (specified value), and press the [OK] key.

   By entering the default value (specified value), the specified voltage is outputted.

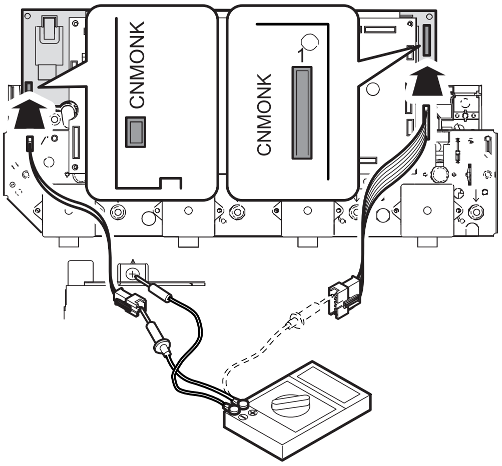
Color	Item	Operation mode	Adjustment value		Main charger grid voltage			
					Monitor (High voltage PWB)			
			Adjustment range	Specified value (Default)	Monitor voltage (Specified value)	Connector	Pin No.	Actual voltage
K	A: HIGH SPEED	High speed (117mm/s) (B & W)	180 – 700	620	53.5 ± 0.2v	CNMONK	1	–620v
	B: MIDDLE SPEED	Middle speed (78mm/s) (Color) (B & W)	180 – 700	620	53.5 ± 0.2v	CNMONK	1	–620v
	C: LOW SPEED	Low speed (58.5mm/s) (Color) (B & W) (Special paper)	180 – 700	620	53.5 ± 0.2v	CNMONK	1	–620v
C	A: MIDDLE SPEED	Middle speed (78mm/s) (Color) (B & W)	180 – 700	620	53.5 ± 0.2v	CNMON	3	–620v
	B: LOW SPEED	Low speed (58.5mm/s) (Color) (B & W) (Special paper)	180 – 700	620	53.5 ± 0.2v	CNMON	3	–620v
M	A: MIDDLE SPEED	Middle speed (78mm/s) (Color) (B & W)	180 – 700	620	53.5 ± 0.2v	CNMON	7	–620v
	B: LOW SPEED	Low speed (58.5mm/s) (Color) (B & W) (Special paper)	180 – 700	620	53.5 ± 0.2v	CNMON	7	–620v
Y	A: MIDDLE SPEED	Middle speed (78mm/s) (Color) (B & W)	180 – 700	620	53.5 ± 0.2v	CNMON	11	–620v
	B: LOW SPEED	Low speed (58.5mm/s) (Color) (B & W) (Special paper)	180 – 700	620	53.5 ± 0.2v	CNMON	11	–620v

Remark: When the default value is set, the specified voltage is outputted.
There is, therefore, no need to check the output voltage unless there is a doubt for any abnormality in the output voltage.
If there is a need to check that the normal voltage is outputted or to adjust by referring to the output voltage, use the method below.

1) Remove the rear cover of the machine.
2) Remove the image process fan motor and the duct.



3) Connect the high voltage adjustment harnesses (DHAi-3471FCZZ/DHAi-3472FCZZ) with the connectors CNMON and CNMONK on the high voltage PWB.



4) Enter the SIM8-2 mode.
5) Select the output mode to be adjusted with the color key and the scroll key.
6) Check that the pin numbers of the connectors CNMON and CNMONK are properly assigned to the connector pin numbers of the high voltage adjustment harness.
7) Apply a digital multi-meter to the connector pins of the high voltage adjustment harness corresponding to the output mode to be adjusted.

8) Press the [EXECUTE] key.

The main charger grid voltage is outputted for 30sec.

If this operation is performed for a long time, the OPC drum and the developing roller may be damaged. Be careful to perform this operation in a short time.

It is advisable to install an unnecessary developing unit and unnecessary OPC drums to the machine for this adjustment.

9) Check the monitor voltage with the digital multi-meter.

If the monitor voltage is not in the above specified range, change the adjustment value and adjust again. If the specified voltage is not obtained even by changing the adjustment value, the following parts may be judged as defective.

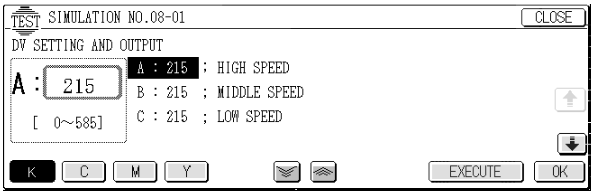
High voltage PWB
PCU PWB
Developing unit
Photoconductor unit
High voltage circuit electrode

ADJ 1B DV bias voltage adjustment

This adjustment must be performed in the following cases:

- When the high voltage power PWB is replaced.
- When a U2 trouble occurs.
- When the PCU PWB is replaced.
- When the EEPROM of the PCU PWB is replaced.

1) Enter the SIM 8-1 mode.



```
TEST SIMULATION NO.08-01                                   CLOSE
DV SETTING AND OUTPUT
A : 215      A : 215 ; HIGH SPEED
             B : 215 ; MIDDLE SPEED
[ 0~585]     C : 215 ; LOW SPEED
K  C  M  Y                                          EXECUTE  OK
```

SIM 8-1

2) Select the output mode to be adjusted with the color key and the scroll key.

3) Enter the adjustment value (specified value), and press the [OK] key.

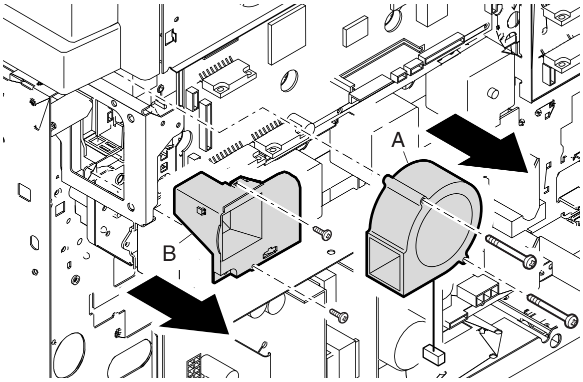
By entering the default value (specified value), the specified voltage is outputted.

Color	Item	Operation mode	Adjustment value		Developing bias voltage			
					Monitor (High voltage PWB)		Pin No.	Actual voltage
			Adjustment range	Specified value (Default)	Monitor voltage (Specified value)	Connector		
K	A: HIGH SPEED	High speed (117mm/s) (B & W)	0 – 585	215	3.94 ± 0.1V	CNMONK	3	–215v
	B: MIDDLE SPEED	Middle speed (78mm/s) (Color) (B & W)	0 – 585	215	3.94 ± 0.1V	CNMONK	3	–215v
	C: LOW SPEED	Low speed (58.5mm/s) (Color) (B & W) (Special paper)	0 – 585	215	3.94 ± 0.1V	CNMONK	3	–215v
C	A: MIDDLE SPEED	Middle speed (78mm/s) (Color) (B & W)	0 – 585	265	5.76 ± 0.1V	CNMON	1	–265v
	B: LOW SPEED	Low speed (58.5mm/s) (Color) (B & W) (Special paper)	0 – 585	265	5.76 ± 0.1V	CNMON	1	–265v
M	A: MIDDLE SPEED	Middle speed (78mm/s) (Color) (B & W)	0 – 585	265	5.76 ± 0.1V	CNMON	5	–265v
	B: LOW SPEED	Low speed (58.5mm/s) (Color) (B & W) (Special paper)	0 – 585	265	5.76 ± 0.1V	CNMON	5	–265v
Y	A: MIDDLE SPEED	Middle speed (78mm/s) (Color) (B & W)	0 – 585	240	4.75 ± 0.1V	CNMON	9	–240v
	B: LOW SPEED	Low speed (58.5mm/s) (Color) (B & W) (Special paper)	0 – 585	240	4.75 ± 0.1V	CNMON	9	–240v

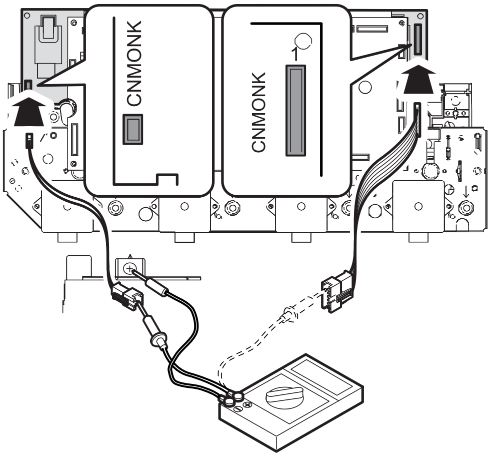
Remark: When the default value is set, the specified voltage is outputted.
There is, therefore, no need to check the output voltage unless there is a doubt for any abnormality in the output voltage.
If there is a need to check that the normal voltage is outputted or to adjust by referring to the output voltage, use the method below.

1) Remove the rear cover of the machine.

2) Remove the image process fan motor and the duct.



3) Connect the high voltage adjustment harnesses (DHAi-3471FCZZ/DHAi-3472FCZZ) with the connectors CNMON and CNMONK on the high voltage PWB.



4) Enter the SIM8-2 mode.

5) Select the output mode to be adjusted with the color key and the scroll key.

6) Check that the pin numbers of the connectors CNMON and CNMONK are properly assigned to the connector pin numbers of the high voltage adjustment harness.

7) Apply a digital multi-meter to the connector pins of the high voltage adjustment harness corresponding to the output mode to be adjusted.

8) Press the [EXECUTE] key.

The developing bias voltage is outputted for 30sec.

If this operation is performed for a long time, the OPC drum and the developing roller may be damaged. Be careful to perform this operation in a short time.

It is advisable to install an unnecessary developing unit and unnecessary OPC drums to the machine for this adjustment.

9) Check the monitor voltage with the digital multi-meter.

If the monitor voltage is not in the above specified range, change the adjustment value and adjust again. If the specified voltage is not obtained even by changing the adjustment value, the following parts may be judged as defective.

High voltage PWB

PCU PWB

Developing unit

Photoconductor unit

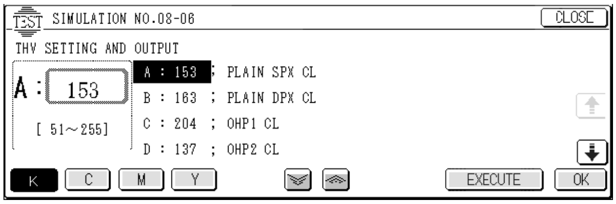
High voltage circuit electrode

ADJ 1C Transfer voltage adjustment

This adjustment must be performed in the following cases:

- When the high voltage power PWB is replaced.
- When a U2 trouble occurs.
- When the PCU PWB is replaced.
- When the EEPROM of the PCU PWB is replaced.

1) Enter the SIM 8-6 mode.



SIMULATION NO.08-06

THV SETTING AND OUTPUT

A : 153

[51～255]

A : 153 ; PLAIN SPX CL
B : 163 ; PLAIN DPX CL
C : 204 ; OHP1 CL
D : 137 ; OHP2 CL

SIM 8-6

2) Select the mode to be adjusted with the color key and scroll key.

3) Enter the adjustment value (specified value), and press the [OK] key.

By entering the default value (specified value), the specified voltage is outputted.

Item		Print mode			Standard setting value (Default)				Adjustment range	Output voltage (Kv)			
					K	C	M	Y		K	C	M	Y
A	PLAIN SPX CL	Color	Normal paper	78mm/s	153	141	119	119	51 - 255	2	2	2	2
B	PLAIN DPX CL	Color	Normal paper(Duplex mode)	78mm/s	168	155	129	129		2.3	2.3	2.3	2.3
C	OHP1 CL	Color	Transparency film 1	78mm/s	204	187	153	153		3	3	3	3
D	OHP2 CL	Color	Transparency film 2	58.5mm/s	137	150	153	163		1.7	2.2	3	3.3
E	HEAVY P1 SPX CL	Color	Thick paper 1	58.5mm/s	158	146	122	122		2.1	2.1	2.1	2.1
F	HEAVY P1 DPX CL	Color	Thick paper 1(Duplex mode)	58.5mm/s	188	173	142	142		2.7	2.7	2.7	2.7
G	HEAVY P2 CL	Color	Thick paper 2	58.5mm/s	173	159	132	132		2.4	2.4	2.4	2.4
H	ENVELOPE CL	Color	Envelope	78mm/s	153	141	119	119		2	2	2	2
I	PLAIN SPX BW	B & W	Normal paper	117mm/s	168					2.3			
J	PLAIN DPX BW	B & W	Normal paper(Duplex mode)	117mm/s	178					2.5			
K	OHP1 BW	B & W	Transparency film 1	78mm/s	204					3			
L	OHP2 BW	B & W	Transparency film 2	58.5mm/s	137					1.7			
M	HEAVY P1 SPX BW	B & W	Thick paper 1	58.5mm/s	147					1.9			
N	HEAVY P1 DPX BW	B & W	Thick paper 1(Duplex mode)	58.5mm/s	178					2.5			
O	HEAVY P2 BW	B & W	Thick paper 2	58.5mm/s	163					2.2			
P	ENVELOPE BW	B & W	Envelope	117mm/s	168					2.3			

Color	Actual output variable range	Voltage change/Adjustment value (1) (Varying amount when the adjustment value is changed by 1)
K	0 to 4000V	About 19.6V
C	0 to 4500V	About 22.1V
M	0 to 6000V	About 29.4V
Y	0 to 6000V	About 29.4V

Press the [EXECUTE] key to output the transfer voltage.

ADJ 2 Image density sensor adjustment

The image density sensor sections are of uneven quality in parts and assembly. This causes variations in the absolute detection level between machines. This adjustment (calibration) is performed to correct the variations.

This adjustment is required in the following cases:

- When the image density sensor is replaced.
- When the transfer unit is replaced.
- When maintenance is performed.
- When U2 trouble occurs.
- When the PCU PWB is replaced.
- When the EEPROM on the PCU PWB is repalced.

The targets of the adjustment are the color image density sensor and the black image density sensor. There are following adjustment methods:

- Color image density sensor adjustment (adjustment by the adjustment jig) SIM44-13
- Black image sensity sensor adjustment SIM44-2
- Image density sensor adjustment (The color image density sensor and the black image density sensor are adjusted at the same time.) (Simple adjustment) SIM44-36

Normally the following adjustments are executed:

- ADJ 2A Color image density sensor adjustment (adjustment by the adjustment jig) (SIM44-13)
- ADJ 2B Black image density sensor adjustment (SIM44-2)

Note:

There are two methods to adjust the color image density sensor; one method uses the adjustment jig, and the other method does not use it.

If there is no adjustment jig available, the simple adjustment (SIM44-36) can be made, which may, however, result in insufficient adjustment accuracy depending on the machine condition.

If toner, the OPC drum, and the transfer belt are not new ones or almost new ones, the simple adjustment is not recommended.

Even though the machine conditions are well, the adjustment by use of the adjustmment jig gives a higher adjustment accuracy than the adjustment without the adjustment jig (simple adjustment).

Also note that SIM44-36 must not executed unnecessarily after execution of the color image density sensor adjustment (adjustment by the adjustment jig) with SIM44-13.

If SIM 44-36 is executed, the contents of the color image density sensor adjustment (adjustment by the adjustment jig) with SIM44-13 are erased, and the adjustment result of SIM44-36 is saved.

When the color image density sensor is adjusted with SIM44-13 and the black image density sensor is adjsuted with SIM 44-2, the adjustment with SIM44-36 is not required.

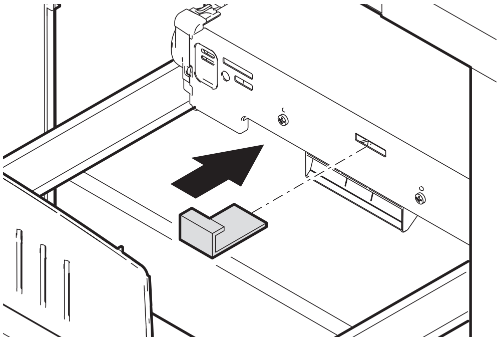
To adjust the black image density sensor, the adjustment jig is not required.

Before executing this adjustment, check the following items:

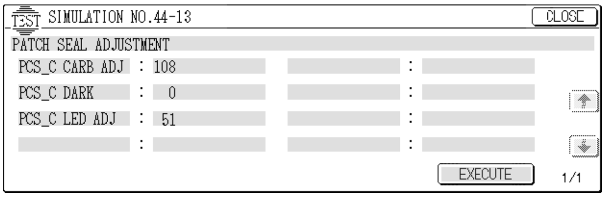
- Check that the color imagte density sensor is clean.
- Check that the image density sensor calibration plate is clean.
- Check that the transfer belt is free from scratches.

ADJ 2A Color image density sensor adjustment (adjustment by the adjustment jig)

1) Open the front cover of the machine.
2) Insert the color image density sensor adjustment jig (CPLTM6305FC01) into the long hole in the transfer unit frame, and close the left cabinet.



3) With the front cover of the machine open (with the cover open/close switch OFF), turn on the power.
4) The Machine enters Sim 44-13 mode.



```
SIMULATION NO.44-13
PATCH SEAL ADJUSTMENT
PCS_C CARB ADJ : 108
PCS_C DARK     :   0
PCS_C LED ADJ  :  51
```

SIM 44-13

5) Close the front cover of the machine.
6) Press the [EXECUTE] key.

The adjustment is performed automatically. When the adjustment is completed, the adjustment result is displayed and the the [EXECUTE] key display returns to the original state.

Display		Content	Min Value	Max Value	Default value
A	PCS_C CARB ADJ	Color image density sensor LED current adjustment target value	1	255	108
B	PCS_C DARK	Color image density sensor dark voltage level	0	255	0
C	PCS_C LED ADJ	Color image density sensor current adjustment value	1	255	51

7) Remove the color image density sensor adjustment jig.

If the adjustment is not completed normally, "ERROR" is displayed.

In that case, check the following sections for no abnormality. If there is any abnormality, repair the part and perform the adjustment again. In case of an error, the adjustment result is not revised.

- Image density sensor
- PCU PWB
- Transfer belt

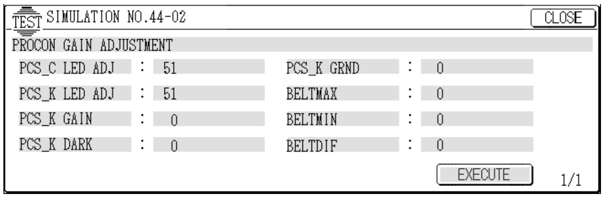
Note:

The color image density sensor adjustment jig is available in the following two forms:

- The jig metal plate with the calibration sheet attached to it (CPLTM6305FC01)

ADJ 2B Black image density sensor adjustment

1) Enter the SIM44-2 mode.



```
SIMULATION NO.44-02
PROCON GAIN ADJUSTMENT
PCS_C LED ADJ  :  51        PCS_K GRND  :  0
PCS_K LED ADJ  :  51        BELTMAX     :  0
PCS_K GAIN     :   0        BELTMIN     :  0
PCS_K DARK     :   0        BELTDIF     :  0
```

2) Press the [EXECUTE] key.

The adjustment is performed automatically. When the adjustment is completed, the adjustment result is displayed and the the [EXECUTE] key display returns to the original state.

Display		Content	Min Value	Max Value	Default value
A	PCS_C LED ADJ	Color image density sensor current adjustment value	1	255	51
B	PCS K LED ADJ	Black image density sensor LED Current adjustment value	1	255	51
C	PCS_K GAIN	Black image density sensor output gain (AMP) adjustment value	0	15	0
D	PCS_K DARK	Black image density sensor dark voltage level	0	255	0
E	PCS_K GRND	Black image density sensor transfer belt surface detection level	0	255	0
F	BELTMAX	Transfer belt surface max. detection level (Black image sensor)	0	255	0
G	BELTMIN	Transfer belt surface min. detection level (Black image sensor)	0	255	0

Display		Content	Min Value	Max Value	Default value
H	BELTDIF	Difference between the max. value and the min. value of the transfer belt surface detection level (BELTMAX-BELTMIN)	0	255	0

If the adjustment is not completed normally, "ERROR" is displayed.

In that case, check the following sections for no abnormality. If there is any abnormality, repair the part and perform the adjustment again.

In case of an error, the adjustment result is not revised.

- Image density sensor
- PCU PWB
- Transfer belt

ADJ 3 Image focus, image skew adjustment (LED (writing) unit)

(1) LED print engine image focus adjustment (LED (writing) unit)

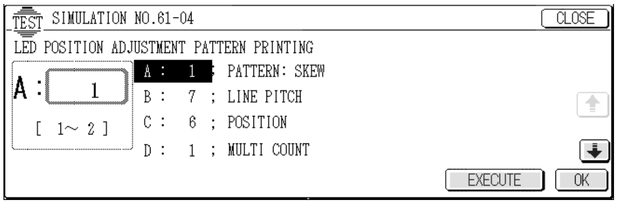
This adjustment must be performed in the following cases:

- When the scanner (writing) unit is replaced.
- When the scanner (writing) unit is removed from the machine.
- When the print image is shifted.
  (Especially conspicuous for text and line drawings)
  (The scanner (reading) unit is normal, but the print image focus of the print engine is not normal.)
- When there is uneven density in the main scanning direction.
- When the color balance adjustment does not result in proper color matching.
- When in installation or when the installing site is changed. (Necessary depending on the case)

1) Execute the process correction forcibly. (SIM44-6)

   This simulation is used to correct the print density of the adjustment pattern.

2) Enter the SIM 61-4 mode.



TEST SIMULATION NO.61-04

LED POSITION ADJUSTMENT PATTERN PRINTING

A : 1

[1～ 2]

A : 1 ; PATTERN: SKEW
B : 7 ; LINE PITCH
C : 6 ; POSITION
D : 1 ; MULTI COUNT

SIM 61-4

3) Set the items A, B and C according to the table below.

	Parameter	Set value
A	PRINT PATTERN	2
B	DENSITY	7
C	POSITION	6

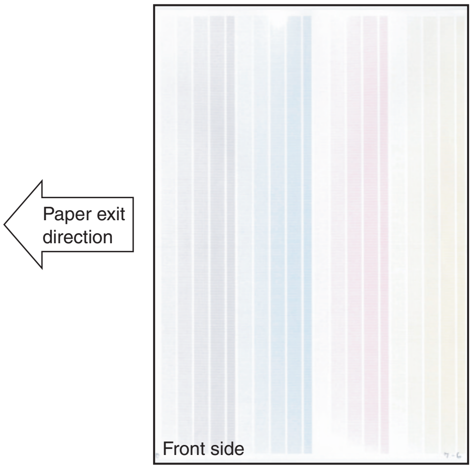
4) Select the A4 (11 x 8 1/2) paper feed tray.

5) Press the [EXECUTE] key.

   The focus adjustment pattern is printed.

6) Check the printed focus adjustment pattern for each color.

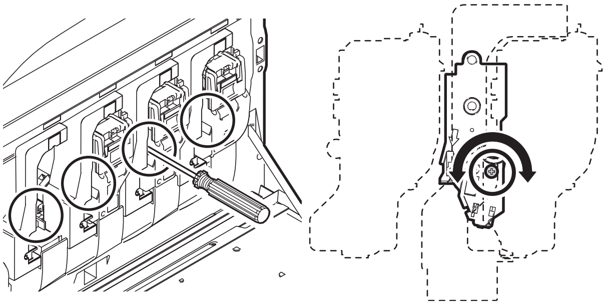
   If focus is proper, the half-tone belts are printed properly. When four or five half-tone belts of each color are printed and there is no density difference in the main scanning direction (back and forth), the focus is proper both on the front and the back sides.



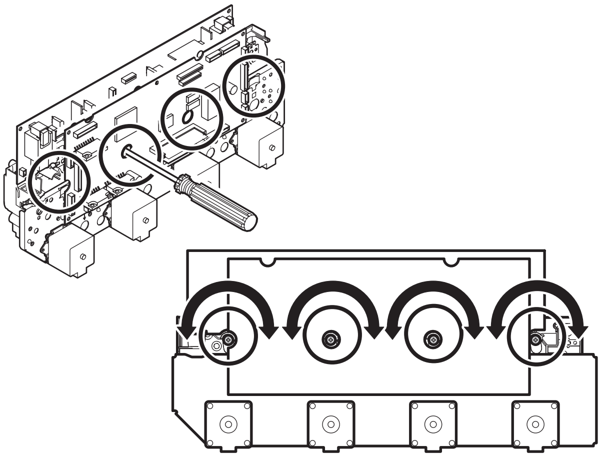
Check that the half-tone belts of each color are printed in good balance.

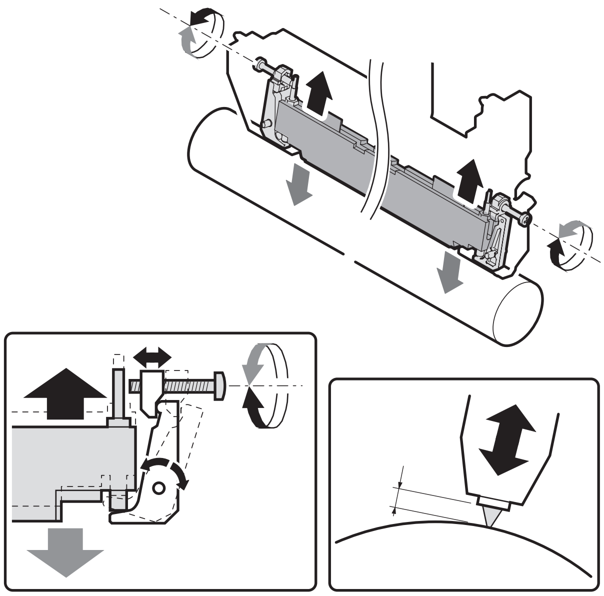
7) If the above condition is not satisfied, turn the focus adjustment screws on the front/rear frame sides to adjust focus.

   Focus on the front side can be separately adjusted from focus on the rear side.



Front frame side





Rear frame side

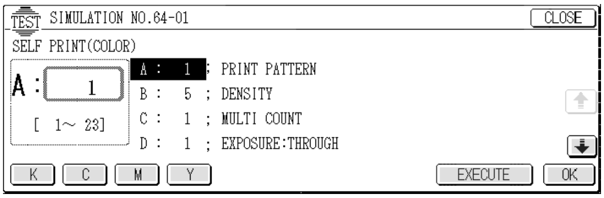
Execute procedures 4 to 6 for each color.

(2) Print engine image skew adjustment (LED (writing) unit)

This adjustment must be performed in the following cases:

- When the scanner (writing) unit is replaced.
- When the scanner (writing) unit is removed from the machine.
- When the print image includes skew.
  (When the scanner (reading) unit is normal and the print image of the print engine includes skew.)
- When a color image registration error occurs.
  (There is an image registration difference in the main scanning direction.)
- When there is uneven density in the main scanning direction.
- When the color balance adjustment does not result in proper color matching.
- When in installation or when the installing site is changed. (Necessary depending on the case)

1) Enter the SIM 64-1 mode.



```
TEST SIMULATION NO.64-01                                  CLOSE
SELF PRINT(COLOR)
        A :  1  ; PRINT PATTERN
A: 1    B :  5  ; DENSITY
[ 1～ 23] C :  1  ; MULTI COUNT
        D :  1  ; EXPOSURE:THROUGH
K  C  M  Y                                      EXECUTE  OK
```

SIM 64-1

2) Set the items A and B according to the table below.

	Parameter	Set value
A	PRINT PATTERN	1
B	DENSITY	1

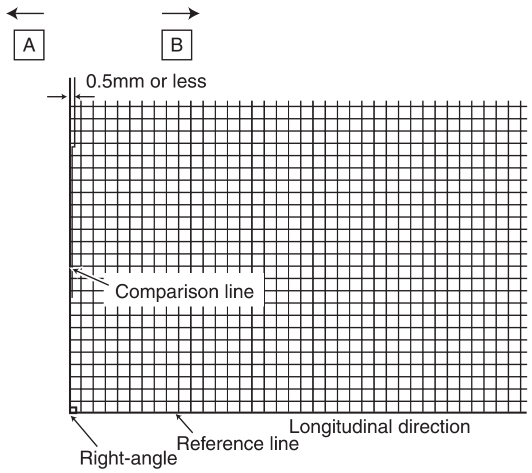
3) Select the A3 (11 x 17) size paper feed tray.

4) Select Black (K) and press the [EXECUTE] key.

The grid patter (one page) is printed.

5) Check the printed grid pattern. (Check for image skew (distortion).)

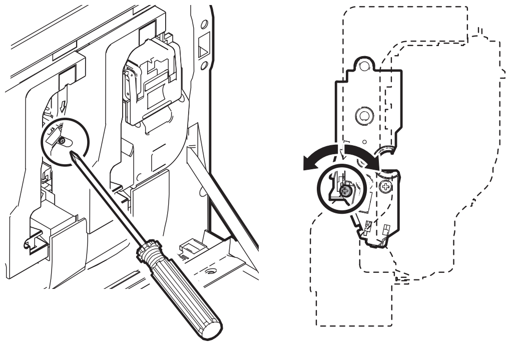
If the right-angle level of the traverse print line is 0.5mm or less for the longitudinal print line of paper, there is no need to adjust.

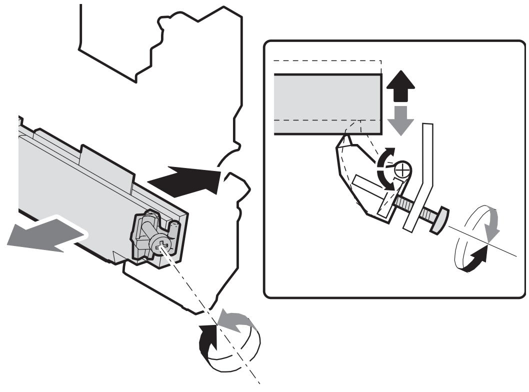


6) If the above conditions are not satisfied, remove the developing unit and turn the print engine image skew adjustment screw to adjust.

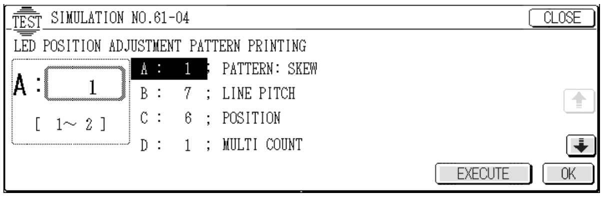
At that time, use SIM 7-1 to set DV CHECK DISABLE to Enable and to disable the developing unit installation detection.

If skew is made in the arrow direction A, turn the adjustment screw clockwise. If skew is made in the arrow direction B, turn the adjustment screw counterclockwise.





7) Enter the SIM 61-4 mode.



```
TEST SIMULATION NO.61-04                                  CLOSE
LED POSITION ADJUSTMENT PATTERN PRINTING
        A :  1  ; PATTERN: SKEW
A: 1    B :  7  ; LINE PITCH
[ 1～ 2 ] C :  6  ; POSITION
        D :  1  ; MULTI COUNT
                                                EXECUTE  OK
```

SIM 61-4

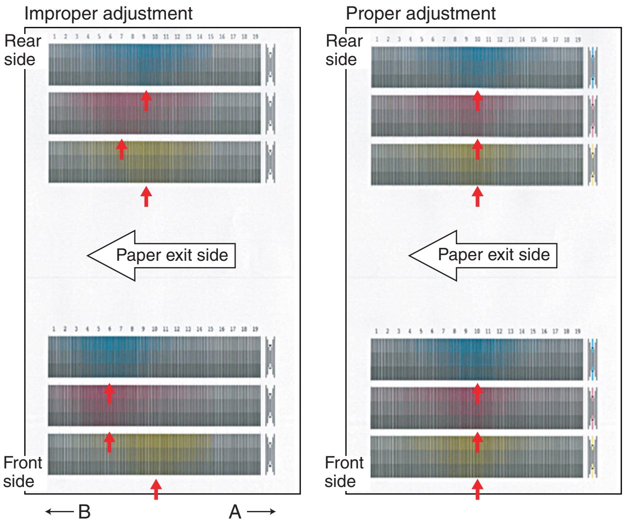
8) Select the A4 (11 x 8.5) size paper feed tray.

9) Press the [EXECUTE] key.

The print engine image skew adjustment pattern is printed. (One page)

10) Check the printed image skew (distortion) pattern.

Compare the same color print pattern on the front frame side with that on the rear frame side, and check that the difference between the two highest-density areas is within 2 steps. (Compare the same color print pattern on the front frame side with that on the rear frame side. There is no need for the positions of the highest-density areas of the print color patterns of all the colors to be aligned on a line. Compare only the same color pattern positions.)



If the above conditions are not satisfied, remove the developing unit on the left and turn the print engine image skew adjustment screw on the front frame side.

To adjust the print engine image skew of Cyan, for example, remove the Magenta developing unit. (To adjust the print engine image skew of Yellow, however, this is not required.)

At that time, use SIM 7-1 to set DV CHECK DISABLE to Enable and to disable the developing unit installation detection.

When the image pattern on the front frame side is skewed to the right (arrow direction A) with the rear frame side as the reference, turn the adjustment screw clockwise. When the image pattern is skewed to the left (arrow direction B), turn the adjustment screw counterclockwise.

When the adjustment screw is turned 1/4 rotation, the image position is shifted by one dot.

Remark: The print engine image focus adjustment is performed by changing the distance between the LED array unit and the OPC drum.

The print engine image skew adjustment is performed by changing the parallelism of the LED array unit for the OPC drum.

If either of the two adjustments is performed, it may affect the other adjustment due to the machine structure.

After completion of the above procedures, check that both of the above two adjustments are satisfied.

ADJ 4 Image registration adjustment

There are two methods of the image registration adjustment: the manual adjustment and the automatic adjustment. Either of them uses the simulation.

This adjustment is required in the following cases:

- When the scanner (writing) unit is replaced.
- When the scanner (writing) unit is removed from the machine.
- When color image mis-resist is generated in the main scanning direction.
- When color image mis-resist is generated in the sub scanning direction.
- When installation or the installing place is changed.
- When maintenance is performed. (When the OPC drum, the photoconductor cartridge, the transfer unit, or the transfer belt is replaced.)
- When U2 trouble occurs.
- When ICU PWB is replaced.
- When EEPROM on ICU PWB is replaced.

Remark: Though SIM 50-22 is not performed under the following conditions, the image registration adjustment is performed automatically.

* When the toner cartridge is replaced.

* At every 8,000 copies (total of print quantity and copy quantity) (When 8,000 copies is reached during a job, the machine stops after completion of the job.)

If the set item AR of SIM 44-1 is set to OFF (Disable), the above operation is not performed.

After setting the image registration to the best by SIM 50-20, when the image registration adjustment is automatically performed, the best-adjusted condition may be varied. To avoid this, set the item AR of SIM 44-1 to OFF (Disable).

Note:

Before executing this adjustment, check that the following adjustments have been properly completed.

* Print engine image focus adjustment (Scanner (writing) unit)

* Print engine image skew adjustment (Scanner (writing) unit)

* Image registration sensor adjustment

* SIM 48-6 FSM (Fuser roller speed) is set to the default.

Default setup of SIM 48-6 FSM (Fuser roller speed)

D: 80 (For paper of 420mm or shorter in the transport direction)

I: 85 (For paper of 420mm or longer in the transport direction)

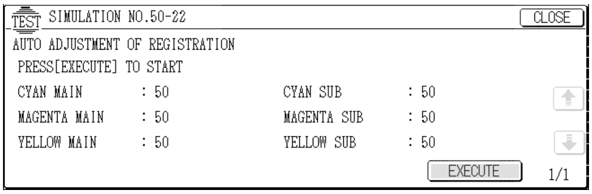
J: 85

K: 70

ADJ 4A Image registration adjustment (Auto adjustment)

This adjustment is used to perform the image registration adjustment in the main scanning direction and in the sub scanning direction at the same time with the simulation.

1) Enter the SIM 50-22 mode.



TEST SIMULATION NO.50-22

AUTO ADJUSTMENT OF REGISTRATION

PRESS[EXECUTE] TO START

CYAN MAIN : 50 CYAN SUB : 50

MAGENTA MAIN : 50 MAGENTA SUB : 50

YELLOW MAIN : 50 YELLOW SUB : 50

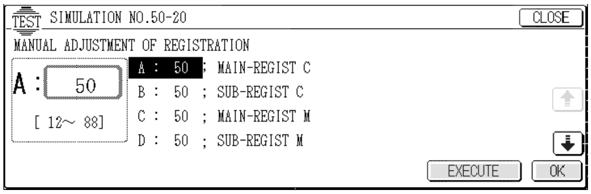
SIM 50-22

2) Press the [EXECUTE] key.

The [EXECUTE] key is highlighted, and the image registration automatic adjustment is started. After completion of the adjustment, the [EXECUTE] key returns to the normal display.

The adjustment process status is indicated with (*) mark. It takes several minutes to complete the adjustment.

3) Enter the SIM 50-20 mode.



TEST SIMULATION NO.50-20

MANUAL ADJUSTMENT OF REGISTRATION

A : 50

[12～ 88]

A : 50 ; MAIN-REGIST C

B : 50 ; SUB-REGIST C

C : 50 ; MAIN-REGIST M

D : 50 ; SUB-REGIST M

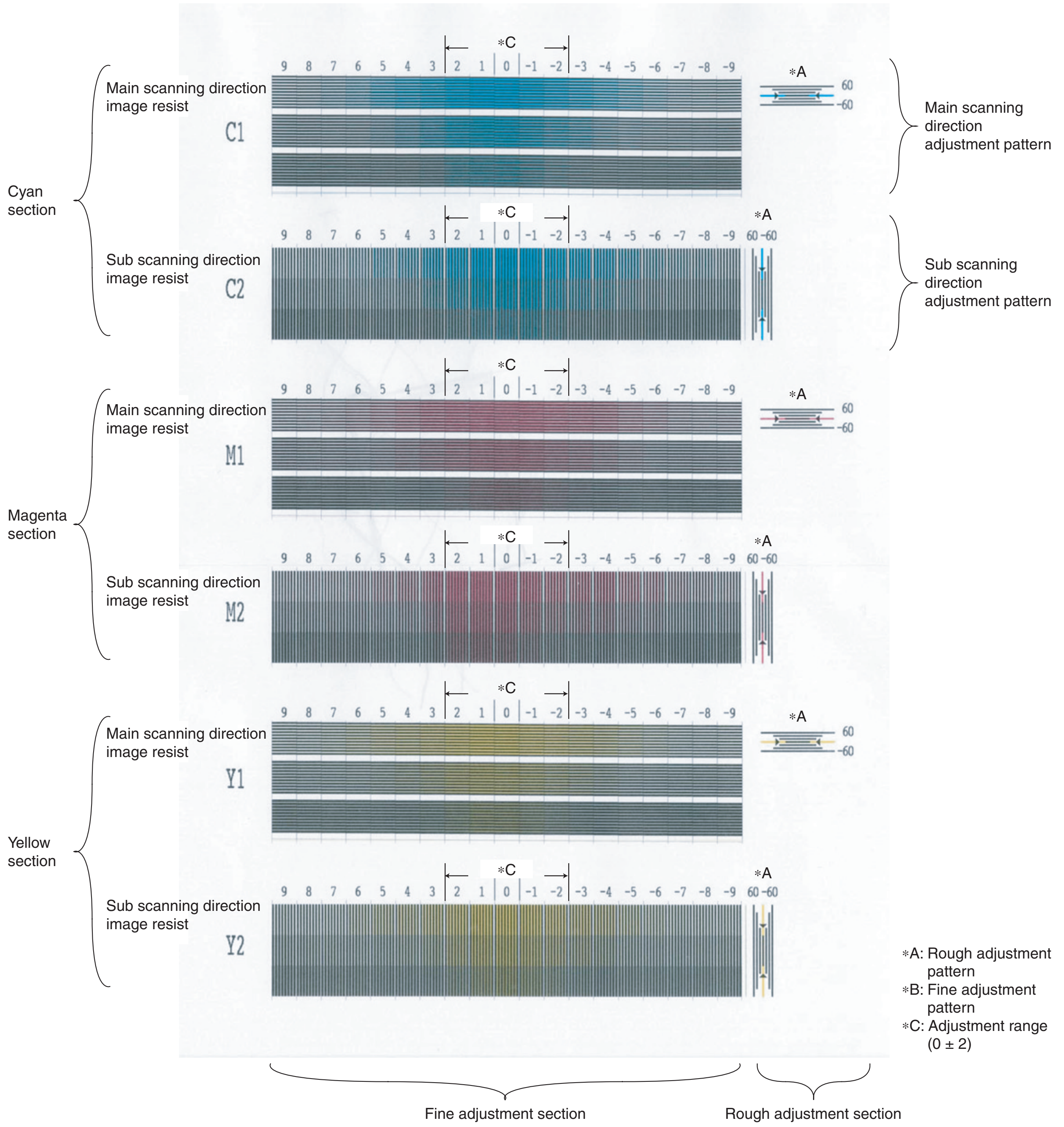
SIM 50-20

4) Select the A4 (11 x 8 1/2) size paper feed tray.

5) Press the [EXECUTE] key.

The image registration adjustment pattern is printed.

- Image registration adjustment pattern


Cyan section
Main scanning direction image resist
C1
Sub scanning direction image resist
C2
Magenta section
Main scanning direction image resist
M1
Sub scanning direction image resist
M2
Yellow section
Main scanning direction image resist
Y1
Sub scanning direction image resist
Y2
*C
9 8 7 6 5 4 3 2 1 0 -1 -2 -3 -4 -5 -6 -7 -8 -9
*A
60
-60
Main scanning direction adjustment pattern
Sub scanning direction adjustment pattern
Fine adjustment section
Rough adjustment section

*A: Rough adjustment pattern
*B: Fine adjustment pattern
*C: Adjustment range (0 ± 2)

C1 = CYAN MAIN
C2 = CYAN SUB
M1 = MAGENTA MAIN
M2 = MAGENTA SUB
Y1 = YELLOW MAIN
Y2 = YELLOW SUB

6) Check the rough adjustment print pattern position and the fine adjustment print pattern position of each color on the front and the rear frame sides.

Check visually and use the highest-density area of each color as the center, and regard it as the reading value of shift.

Rough adjustment print pattern check:	Check that the rough adjustment print pattern is at the center for the rough adjustment reference pattern.
Fine adjustment print pattern check:	Check that the fine adjustment print pattern is at the center for the fine adjustment reference pattern.

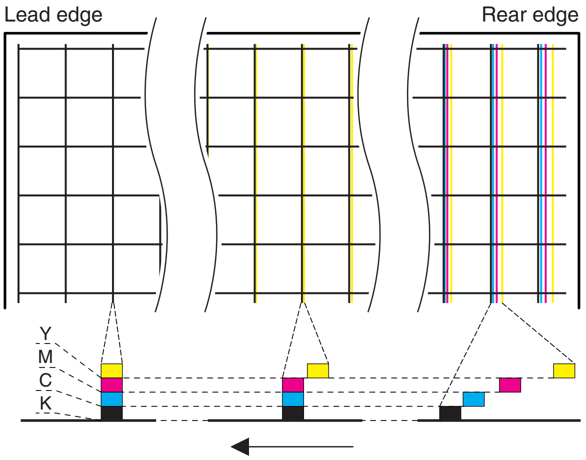
(If the fine adjustment print pattern is in the range of 0 ± 2 for the scale of the fine adjustment reference pattern, there is no need to adjust.)

If the adjustment is not completed with a satisfactory result, try the manual adjustment.

7) Set SIM 64-1 as shown below, and make a self print of cross pattern on A3 paper.

A: 1 B: 1 to 5 D: 1 YMCK all color mode

8) Check the latter part of the A3 copy paper for any color shift in the paper transport direction.



If there is any color shift, change and adjust SIM 48-6 FSM (L) (Fuser roller speed) setup.

When the paper transport speed in the transfer section differs from that of the fusing roller, color shift is generated on the latter half of paper.

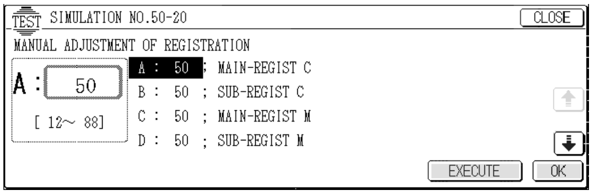
Especially when the paper transport speed of the fusing roller is greater than that in the transfer section, color shift is often generated on the latter half of paper.

This is because paper squeezed by the transfer roller and the OPC drum is pulled by the fusing roller.

The longer the paper size is, the greater the difference is in the paper transport speed between the fusing roller and the transfer section, resulting in greater color shift.

ADJ 4B Image registration adjustment (Manual adjustment)

1) Enter the SIM 50-20 mode.



SIMULATION NO.50-20

MANUAL ADJUSTMENT OF REGISTRATION

A : 50

[12~ 88]

A : 50 ; MAIN-REGIST C
B : 50 ; SUB-REGIST C
C : 50 ; MAIN-REGIST M
D : 50 ; SUB-REGIST M

SIM 50-20

2) Select the A4 (11 x 8 1/2) paper feed tray.

3) Press the [EXECUTE] key.

The image registration adjustment pattern is printed.

4) Check the rough adjustment print pattern position and the fine adjustment print pattern position of each color on the front and the rear frame sides.

Check visually and use the highest-density area of each color as the center, and regard it as the reading value of shift.

Rough adjustment print pattern check:	Check that the rough adjustment print pattern is at the center for the rough adjustment reference pattern.
Fine adjustment print pattern check:	Check that the fine adjustment print pattern is at the center for the fine adjustment reference pattern.

(If the fine adjustment print pattern is in the range of 0 ± 2 for the scale of the fine adjustment reference pattern, there is no need to adjust.)

If the above condition is not satisfied, change the adjustment value and tray again.

5) Select the color mode adjustment item to be adjusted with the scroll key. Change the adjustment value and to adjust.

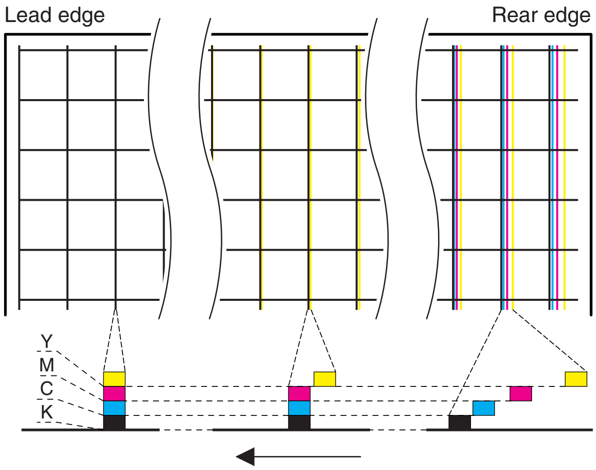
Display		Adjustment item		Set range	Default value
A	MAIN-REGIST C	Main scanning direction image registration adjustment value	Cyan	12 to 88	50
B	SUB-REGIST C	Sub scanning direction image registration adjustment value	Cyan	1 to 132	
C	MAIN-REGIST M	Main scanning direction image registration adjustment value	Magenta	12 to 88	
D	SUB-REGIST M	Sub scanning direction image registration adjustment value	Magenta	1 to 132	
E	MAIN-REGIST Y	Main scanning direction image registration adjustment value	Yellow	12 to 88	
F	SUB-REGIST Y	Sub scanning direction image registration adjustment value	Yellow	1 to 132	

When the adjustment value is changed by 1, the image position is shifted by one pixel.

6) Set SIM 64-1 as shown below, and make a self print of cross pattern on A3 paper.

A: 1 B: 1 to 5 D: 1 YMCK all color mode

7) Check the latter part of the A3 copy paper for any color shift in the paper transport direction.



If there is any color shift, change and adjust SIM 48-6 FSM (Fuser roller speed) setup.

When the paper transport speed in the transfer section differs from that of the fusing roller, color shift is generated on the latter half of paper.

Especially when the paper transport speed of the fusing roller is greater than that in the transfer section, color shift is often generated on the latter half of paper.

This is because paper squeezed by the transfer roller and the OPC drum is pulled by the fusing roller.

The longer the paper size is, the greater the difference is in the paper transport speed between the fusing roller and the transfer section, resulting in greater color shift.

Main scanning direction image position adjustment (Print engine section)

(1) How to read the fine adjustment pattern

The highest-density area of the color is regarded as the center and as the reading value of the shift amount.
(The reading value in the figure below is 4.)

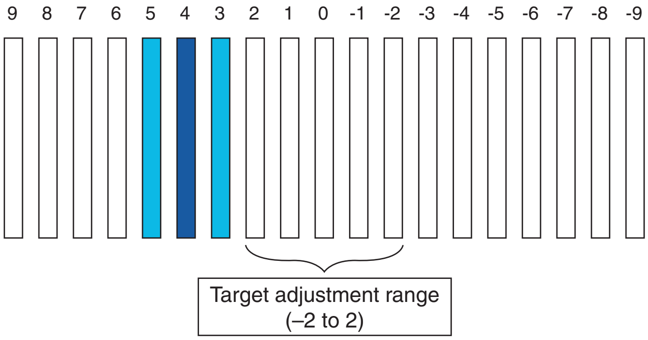
(2) How to read the rough adjustment pattern

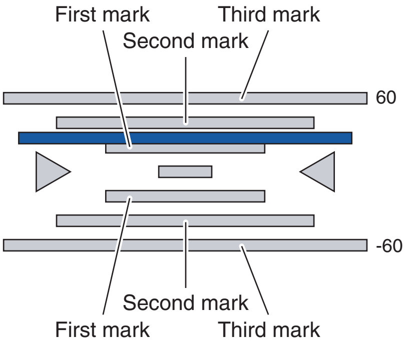
Judge the polarity by checking that the color line is shifted to the positive or the negative side.

The scales are made with the black line at the center as 0, the first mark as 20, the second mark as 40, and the third mark as 60.

The interval between rough adjustment marks is 20.
(For an example shown in the figure below, it is between 20 and 40 on the positive side. Therefore, the reading value is 20.)

(Example)


9 8 7 6 5 4 3 2 1 0 -1 -2 -3 -4 -5 -6 -7 -8 -9
Target adjustment range
(–2 to 2)


First mark
Third mark
Second mark
60
-60
Second mark
First mark
Third mark

(3) How to calculate the adjustment value

New adjustment value = Current adjustment value + Rough adjustment pattern reading value + Fine adjustment pattern reading value

A: Current adjustment value

B: New adjustment value

X: Fine adjustment pattern reading value

Y: Rough adjustment pattern reading value

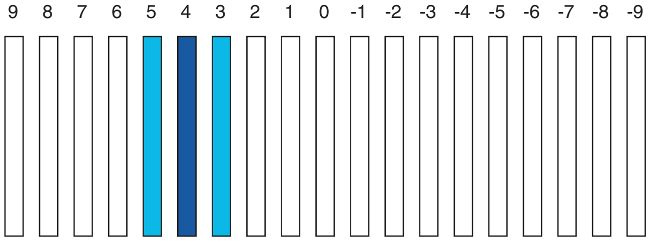
The polarity of the calculation differs depending on the polarity of the adjustment pattern reading values. There are following four cases:

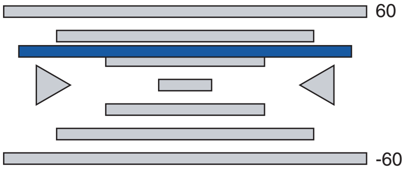
1) When $Y \geq 0$, and $X \geq 0$:
   $B = A + X + Y$
2) When $Y \geq 0$, and $X < 0$:
   $B = A + (X + 20) + Y$
3) When $Y < 0$, and $X \geq 0$:
   $B = A + (X - 20) + Y$
4) When $Y < 0$, and $X < 0$:
   $B = A + X + Y$

Example

A: Providing that Current adjustment value = 48:

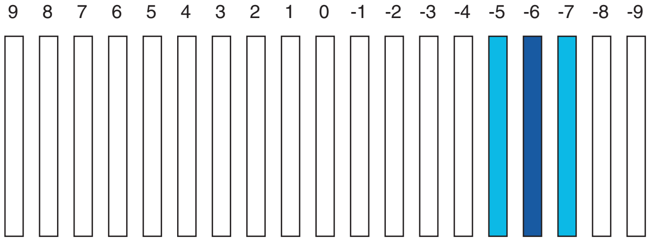
1) When $Y \geq 0$, and $X \geq 0$:

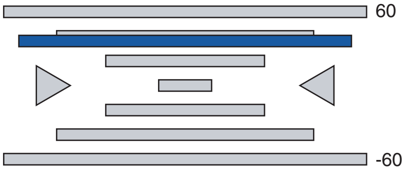

9 8 7 6 5 4 3 2 1 0 -1 -2 -3 -4 -5 -6 -7 -8 -9



$B = A + X + Y = 48 + (4) + (20) = 72$

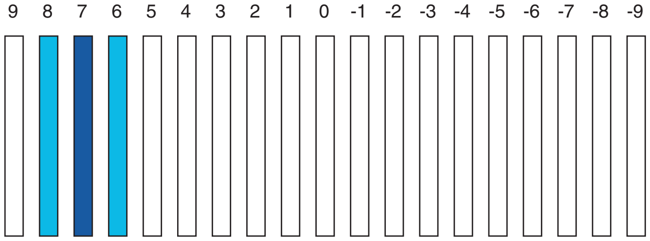
2) When $Y \geq 0$, and $X < 0$:

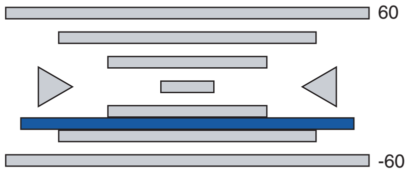

9 8 7 6 5 4 3 2 1 0 -1 -2 -3 -4 -5 -6 -7 -8 -9



$B = A + (X + 20) + Y = 48 + (-6 + 20) + (20) = 82$

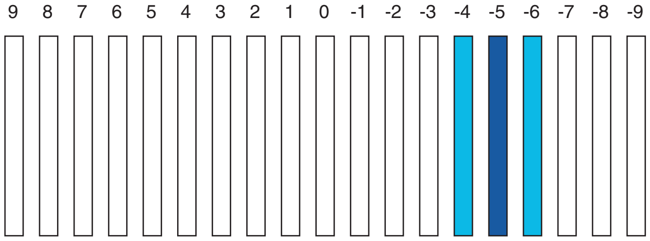
3) When $Y < 0$, and $X \geq 0$:

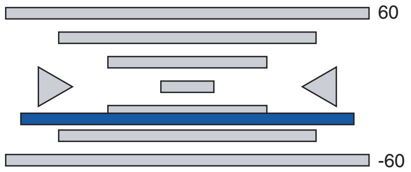

9 8 7 6 5 4 3 2 1 0 -1 -2 -3 -4 -5 -6 -7 -8 -9



$B = A + (X - 20) + Y = 48 + (7 - 20) + (-20) = 15$

4) When $Y < 0$, and $X < 0$:


9 8 7 6 5 4 3 2 1 0 -1 -2 -3 -4 -5 -6 -7 -8 -9



$B = A + X + Y = 48 + (-5) + (-20) = 23$

Sub scanning direction image position/print area adjustment (Print engine section)

(1) How to read the fine adjustment pattern

The highest-density area of the color is regarded as the center and as the reading value of the shift amount.
(The reading value in the figure below is 4.)

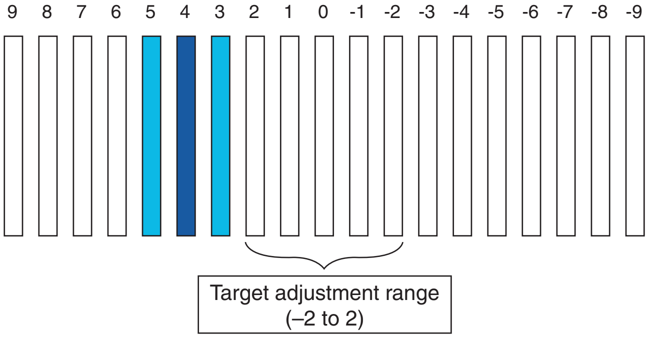
(2) How to read the rough adjustment pattern

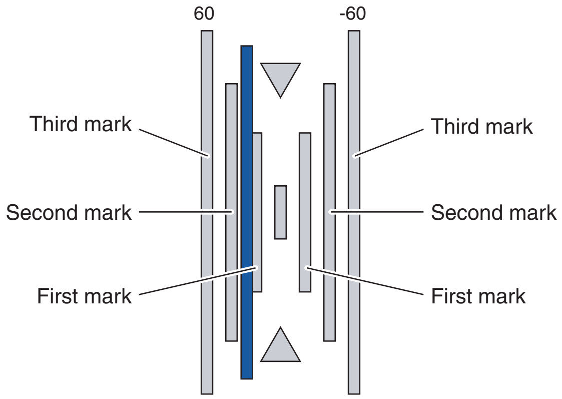
Judge the polarity by checking that the color line is shifted to the positive or the negative side.

The scales are made with the black line at the center as 0, the first mark as 20, the second mark as 40, and the third mark as 60.

The interval between rough adjustment marks is 20.
(For an example shown in the figure below, it is between 20 and 40 on the positive side. Therefore, the reading value is 20.)

(Example)


9 8 7 6 5 4 3 2 1 0 -1 -2 -3 -4 -5 -6 -7 -8 -9
Target adjustment range
(–2 to 2)


60
-60
Third mark
Third mark
Second mark
Second mark
First mark
First mark

(3) How to calculate the adjustment value

New adjustment value = Current adjustment value + Rough adjustment pattern reading value + Fine adjustment pattern reading value

A: Current adjustment value

B: New adjustment value

X: Fine adjustment pattern reading value

Y: Rough adjustment pattern reading value

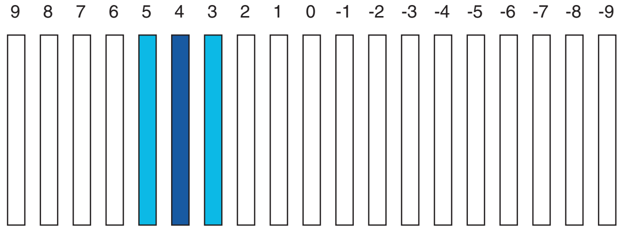
The polarity of the calculation differs depending on the polarity of the adjustment pattern reading values. There are following four cases:

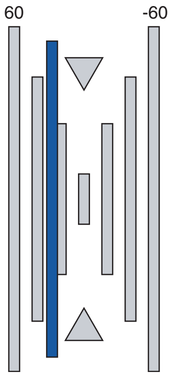
1) When $Y \geq 0$, and $X \geq 0$:
   $B = A + X + Y$
2) When $Y \geq 0$, and $X < 0$:
   $B = A + (X + 20) + Y$
3) When $Y < 0$, and $X \geq 0$:
   $B = A + (X - 20) + Y$
4) When $Y < 0$, and $X < 0$:
   $B = A + X + Y$

Example

A: Providing that Current adjustment value = 48:

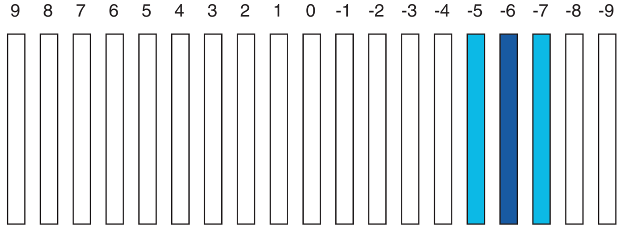
1) When Y ≥ 0, and X ≥ 0:

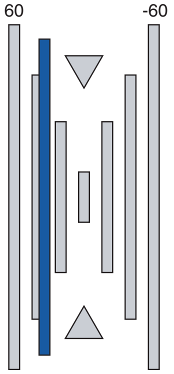

9 8 7 6 5 4 3 2 1 0 -1 -2 -3 -4 -5 -6 -7 -8 -9



B = A + X + Y = 48 + (4) + (20) = 72

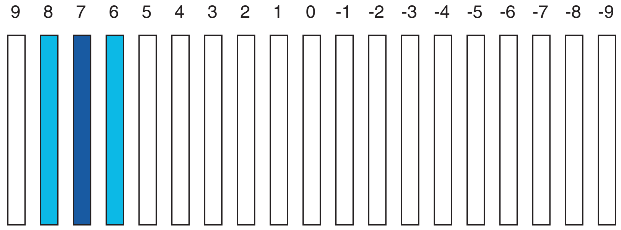
2) When Y ≥ 0, and X < 0:

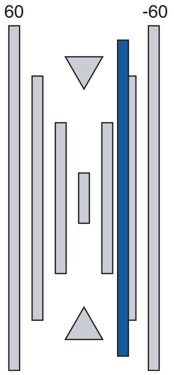

9 8 7 6 5 4 3 2 1 0 -1 -2 -3 -4 -5 -6 -7 -8 -9



B = A + (X + 20) + Y = 48 + (–6 + 20) + (20) = 82

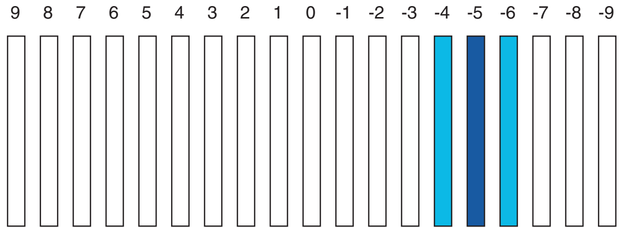
3) When Y < 0, and X ≥ 0:

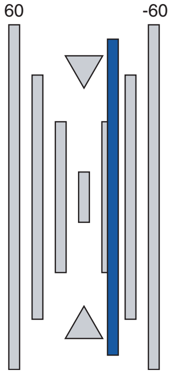

9 8 7 6 5 4 3 2 1 0 -1 -2 -3 -4 -5 -6 -7 -8 -9



B = A + (X – 20) + Y = 48 + (7 – 20) + (–20) = 15

4) When Y < 0, and X < 0:


9 8 7 6 5 4 3 2 1 0 -1 -2 -3 -4 -5 -6 -7 -8 -9



B = A + X + Y = 48 + (–5) + (–20) = 23

ADJ 5 Image position/print area adjustment (Print engine section)

ADJ 5A Main scanning direction image position adjustment (Print engine section)

This adjustment must be performed in the following cases:

- When the paper tray is replaced.
- When the paper tray section is disassembled.
- When the manual paper feed tray is replaced.
- When the manual paper feed tray is disassembled.
- When the duplex section is disassembled.
- When the duplex section is installed or replaced.
- When the large capacity paper feed tray is installed or replaced.
- When the large capacity paper feed tray is disassembled.
- When a U2 trouble occurs.
- When the ICU main PWB is replaced.
- When the EEPROM of the ICU main PWB is replaced.

1) Enter the SIM 50-10 mode.

2) Select the paper feed mode to be adjusted with the scroll key.

3) Press the [EXECUTE] key.

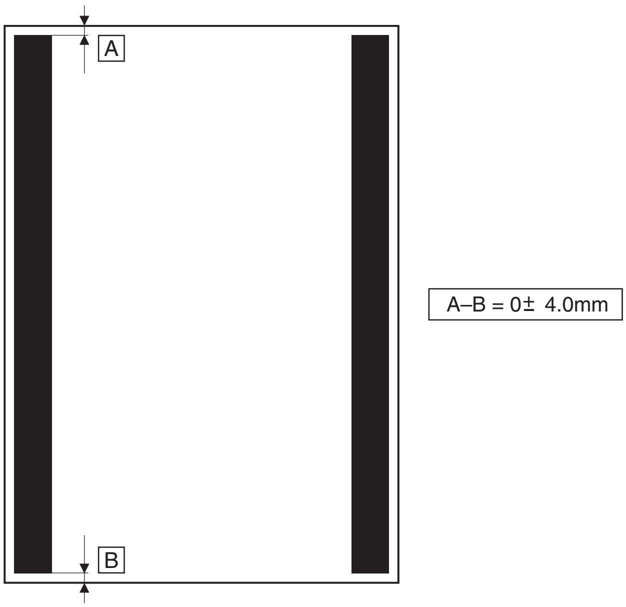
The adjustment pattern is printed.

4) Check the adjustment pattern image position.

Measure the sizes of the void area on the front and the back edges of the adjustment pattern, and check that the following conditions are satisfied.

If A – B = 0 ± 4.0mm, there is no need to adjust.

If the above condition is not satisfied, perform the following procedure.



5) Change the adjustment value.

(Enter the adjustment value and press the [OK] key.)

When the adjustment value is increased, the image is shifted backward.

When the adjustment value is decreased, the image is shifted forward.

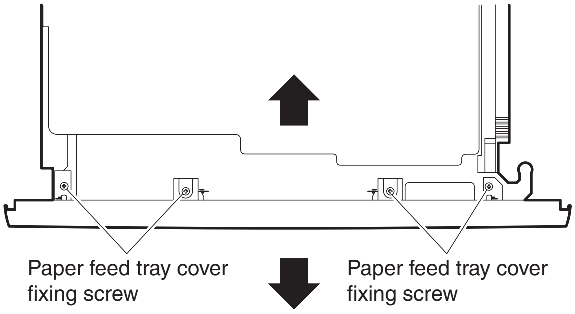
A change in the set value by 1 corresponds to a change in the shift by about 0.1mm.

Repeat procedures 3) – 5) until the condition of procedure 4) is satisfied.

If the above procedure does not satisfy the condition of 4), perform the following procedure.

6) Loosen the paper feed tray cover fixing screw, and shift the installing position in the arrow direction.

Perform procedures from 2) again.


Paper feed tray cover fixing screw
Paper feed tray cover fixing screw

Perform the above procedures for all paper feed units.

ADJ 5B Sub scanning direction image position/print area adjustment (Print engine section)

This adjustment must be performed in the following cases:

- When a U2 trouble occurs.
- When the ICU PWB is replaced.
- When the EEPROM of the ICU PWB is replaced.

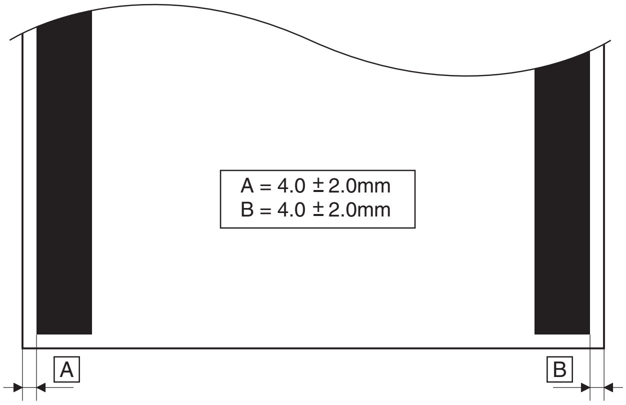
1) Enter the SIM 50-5 mode.

2) Select the paper feed mode with the scroll key.

3) Press the [EXECUTE] key.

The adjustment pattern is printed.

4) Check the adjustment pattern image position.



Measure the sizes of the void area on the left and the right edges of the adjustment pattern, and check that the following conditions are satisfied.

If A = 4.0 ± 2.0mm and B = 4.0 ± 2.0mm, the adjustment is not required.

If the above condition is not satisfied, perform the following procedure.

5) Change the adjustment values of item A (DEN-C) and B (DEN-B), and press the [EXECUTE] key.

When the adjustment value of item A (DEN-C) is decreased by 1, the print start position in the sub scanning direction is shifted to the paper lead edge by 0.125mm.

When the adjustment value of item B (DEN-B) is decreased by 1, the print start position in the sub scanning direction is shifted to the paper rear edge by 0.125mm.

Repeat procedures 3) – 5) until the condition of procedure 4) is satisfied.

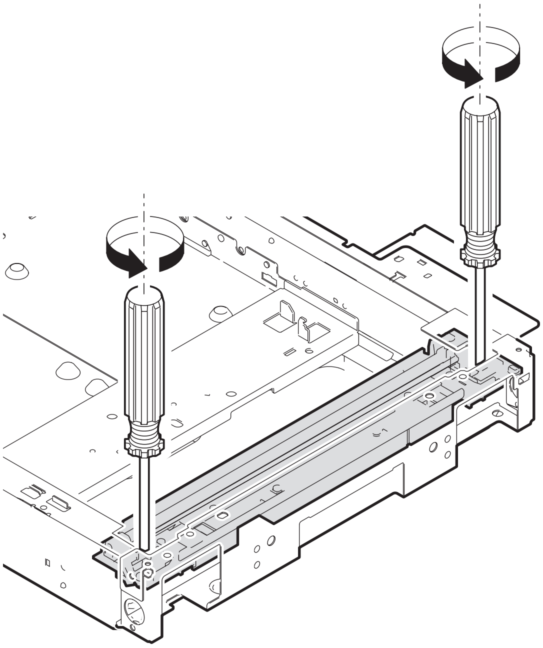
ADJ 6 Copy image distortion adjustment

This adjustment must be performed in the following cases:

- When the scanner (reading) section is disassembled.
- When a copy image distortion occurs.

ADJ 6A Scanner (reading) unit parallelism adjustment

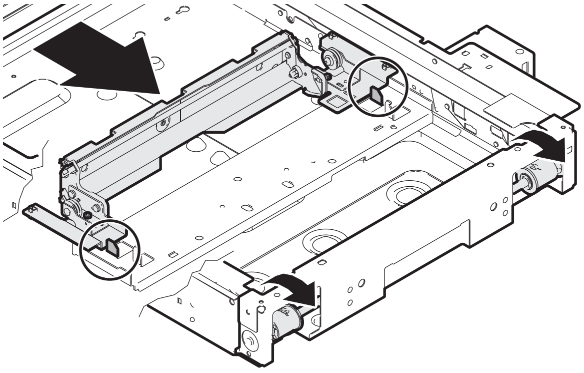
1) Loosen the screw that is fixing the scanner unit A and the drive wire, and remove the scanner unit A from the drive wire.



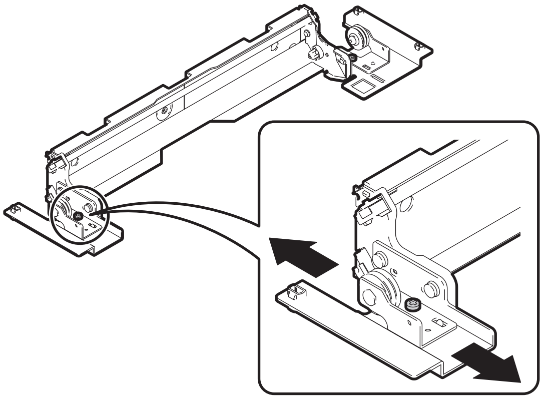
2) Manually turn the scanner drive pulley to bring the scanner unit B into contact with the stopper.

At that time, if the scanner unit B makes contact with the two stoppers on the front and the rear frame simultaneously, the parallelism of the scanner unit B is proper.

If not, perform the following procedures.



3) Loosen the pulley angle fixing screw on the front frame side of the scanner unit B.



4) Adjust the pulley angle position on the scanner unit B front frame side so that both stoppers on the front frame and the rear frame are in contact with the scanner unit B at the same time.

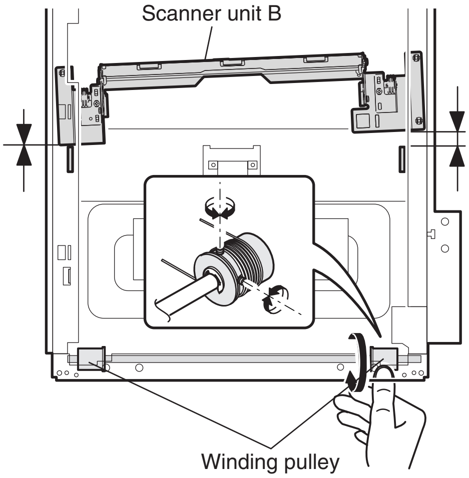
5) Fix the pulley angle on the scanner unit B front frame side.

If the above procedure does not result in a satisfactory result, perform the following procedure.

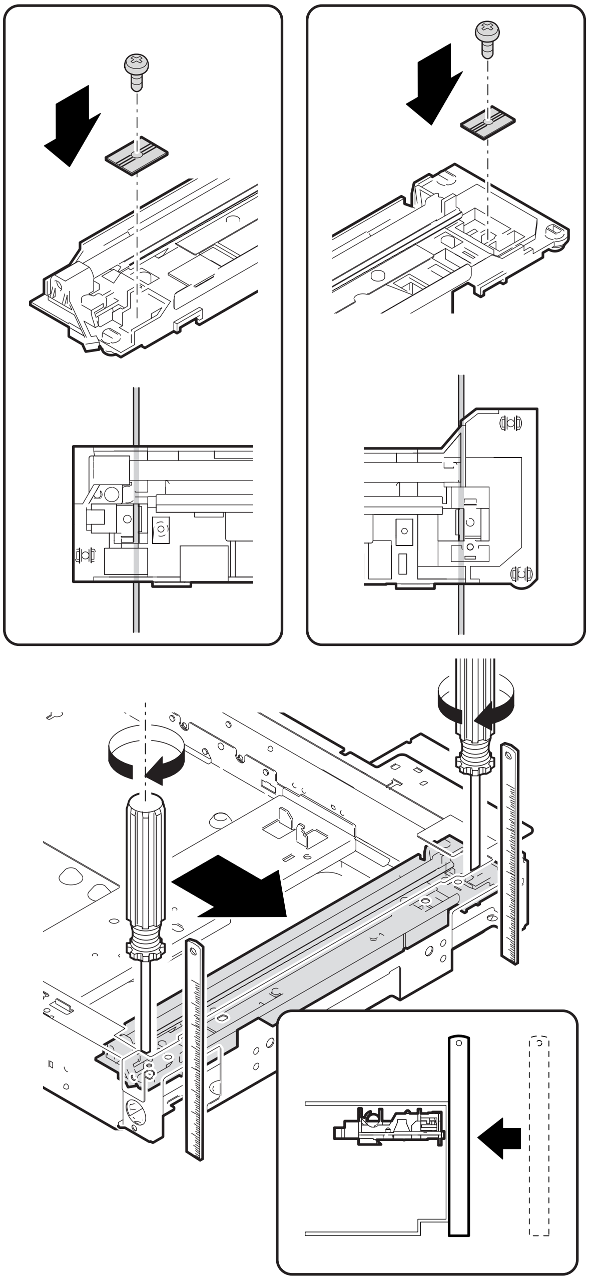
Loosen the fixing screw of the scanner unit drive pulley that is not in contact.

Without moving the scanner unit drive shaft, manually turn the scanner unit drive pulley so that the scanner unit B is brought into contact with the stopper on the front frame side and the stopper on the rear frame side at the same time. (Change the relative positions of the scanner unit drive pulley and the drive shaft.)

Fix the scanner unit drive pulley fixing screw.

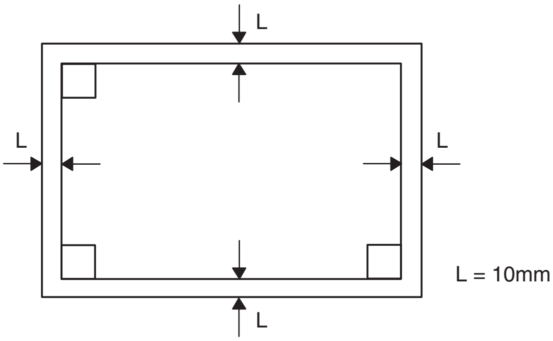


6) With the scanner unit B in contact with the both stoppers on the CCD mounting plate at the same time, fit the edge of the scanner unit A with the frame right edge and fix the scanner unit A with the screw.

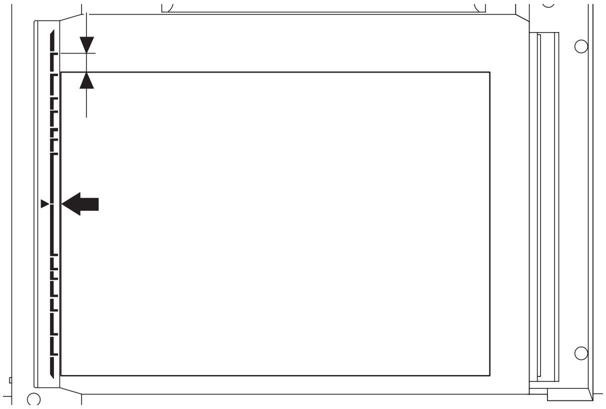


ADJ 6B Copy image sub scanning direction distortion adjustment

1) Make a test chart on A3 (11" x 17") paper as shown below. (Draw a rectangular with four right angles.)

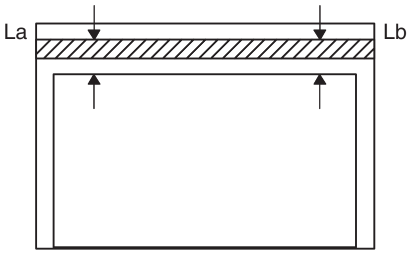


2) Set the test chart made in procedure 1) on the document table. (Leave a space of about 30mm between the reference position and the test chart.) With the document cover open, make a copy on A3 (11" x 17").



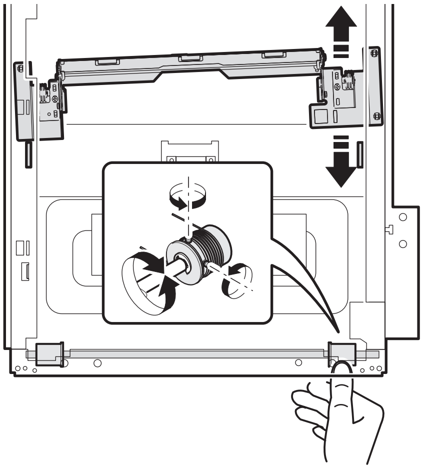
3) Check for distortion in the sub scanning direction.

If La = Lb, there is no distortion.



If there is some distortion in the sub scanning direction, perform the following procedures.

4) Loosen either of two fixing screws of the scanner unit drive pulley. (Either one on the front or the rear side will do.)



5) With the scanner unit drive shaft kept stationary, turn the scanner unit drive pulley manually to change the parallelism of scanner units A and B. (Change the relative positions of the scanner unit drive pulley and the drive shaft.)

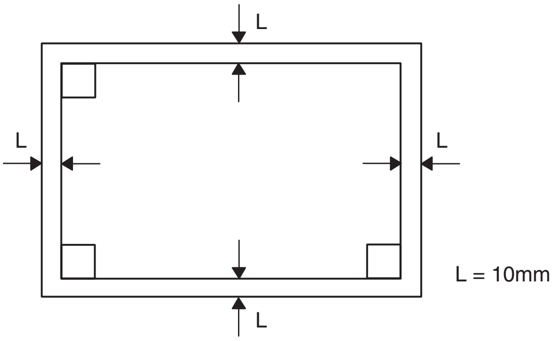
6) Tighten the scanner unit drive pulley fixing screw.

Repeat procedures 2) – 6) until the condition of procedure 3) is satisfied.

If the distortion in the sub scanning direction cannot be deleted with the above procedures, perform ADJ 6D, Scan image distortion adjustment.

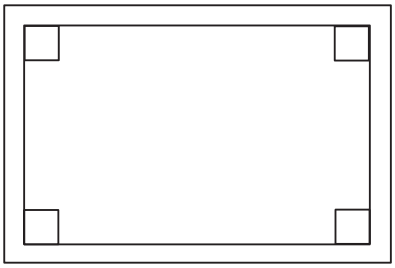
ADJ 6C Copy image main scanning direction distortion adjustment

1) Make a test chart on A3 (11" x 17") paper as shown below. (Draw a rectangle with four right angles.)



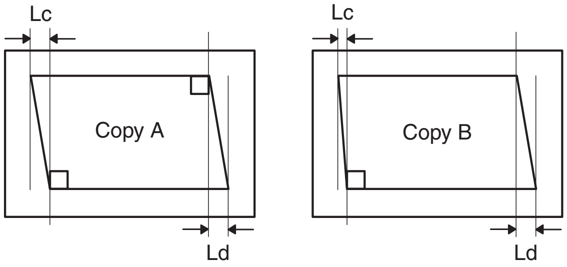
2) Set the test chart made in procedure 1) on the document table. With the document cover open, make a copy on A3 (11" x 17").
3) Check for distortion in the main scanning direction.

   If the four angles of the rectangle on the copy are right angles, there is no distortion. (Completion of the adjustment)



If there is some distortion in the main scanning direction, perform the following procedures

4) Check the difference (distortion balance) of left and right images distortions.



There is no difference between the distortion on the right and that on the left.
Lc = Ld

There is some difference between the distortion on the right and that on the left.
Lc ≠ Ld

If Lc = Ld, the distortion on the left is equal to that on the right. (The distortions are balanced.)

If the above condition is satisfied, go to procedure 6).

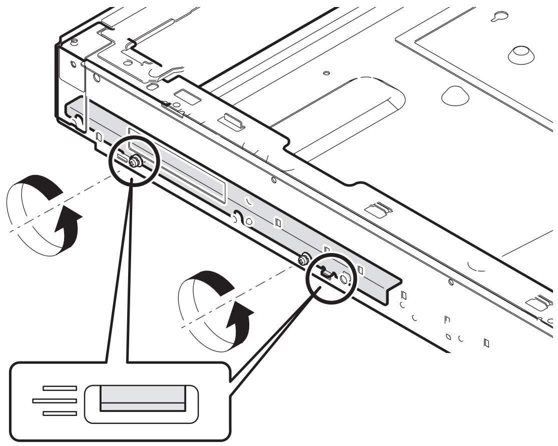
If the above condition is not satisfied, perform the following procedure.

5) Change the height balance of the front frame side scanner rail.

   [Rail adjustment]

   1) Make a copy from the table glass, and check the copy output.

      In this case, set the test chart correctly. If it is set inclined, the adjustment cannot be made correctly.
   2) If the check result is outside the specified range, perform the following procedure.
   3) Remove the front cabinet on the scanner side, and check the installing position of the MB rail.
   4) Loosen the screw on the right side of the MB rail.



Repeat procedures 2) to 5) until the image distortions are balanced.

6) Without changing the balance between the front frame side scanner rail, change the overall height.
7) Set the test chart made in procedure 1) on the document table, and make a copy on A3 (11" x 17") paper. Check that the main scanning distortion is within the specified range.

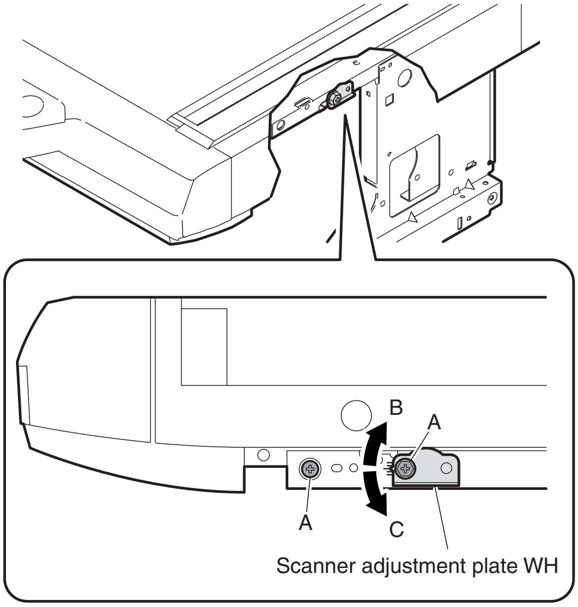
   Perform procedures 6) to 7) until the main scanning direction distortion is in the specified range.

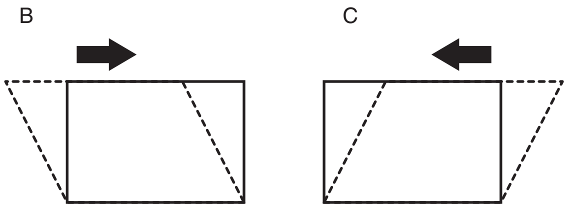
If this adjustment cannot remove the sub scanning direction distortion, perform ADJ 6D, Scan image distortion adjustment.

ADJ 6D Scan image distortion adjustment

If scan image distortion cannot be removed with ADJ 6A, ADJ 6B, and ADJ 6C, perform this adjustment.

Change the position of the scanner unit distortion adjustment plate on the right side of the scanner unit so that the scanner image distortion becomes minimum. The scan image distortion is adjusted by adjusting the overall mechanical distortion of the scanner unit.



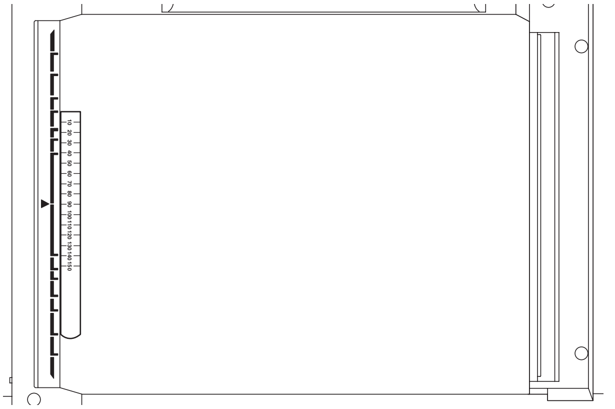


ADJ 7 Copy image focus (main scanning direction copy magnification ratio) adjustment (CCD unit position adjustment)

This adjustment must be performed in the following cases:

- When the CCD unit is removed from the machine.
- When the CCD unit is replaced.
- When the copy image focus is improper.
- When the copy magnification ratio in the copy image main scanning direction is not proper.
- When the MFP main PWB is replaced.
- When the EEPROM of the MFP main PWB is replaced.
- When a U2 trouble occurs.

1) Enter the SIM 48-1 mode.
2) Set the set item B to 50 (initial value).
3) As shown in the figure below, place a scale on the original table.



4) Make a normal copy on A4 paper.
5) Compare the scale image length and the actual scale length.
6) Obtain the main scanning direction copy magnification ratio according to the following formula.

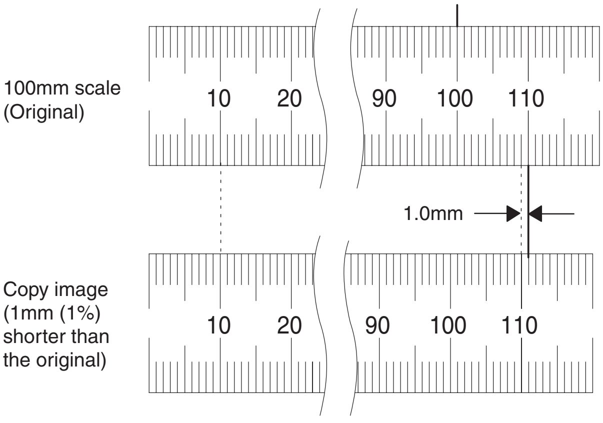
Main scanning direction copy magnification ratio

$$= \frac{\text{(Original dimension – Copy dimension)}}{\text{Original dimension}} \text{ x } 100 \text{ [\%]}$$

(Example) Fit 10mm of the scale with 10mm of the copied scale and compare them.

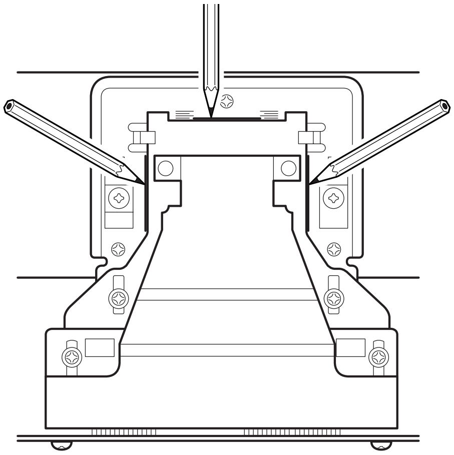
Main scanning direction copy magnification ration

$$= \frac{100 - 99}{100} \text{ x } 100 = 1$$



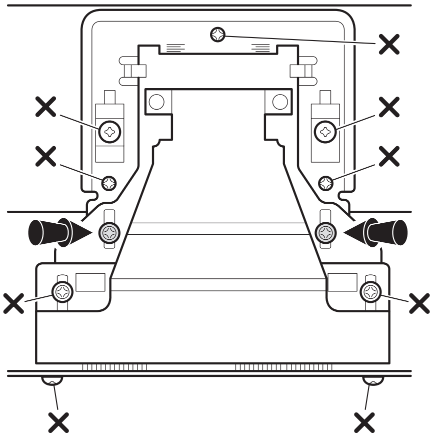
If the copy magnification ratio is not satisfactory, perform the following procedure.

7) Remove the original guide L and R, and remove the table glass.
8) Remove the dark box cover.
9) To prevent against the optical axis shift of the CCD unit, mark the CCD unit base as shown in the figure below.



∗ This procedure must be performed when replacing the CCD unit.

10) Loosen the two fixing screws of the CCD unit.



∗ **Never loosen the screws marked with "×."**

If one of these screws is loosened, the CCD unit base position and angle may be changed. If so, it cannot be adjusted in the market, and therefore the whole scanner unit must be replaced.

11) Slide the CCD unit in the arrow direction (CCD sub scanning direction) to change the installing position.

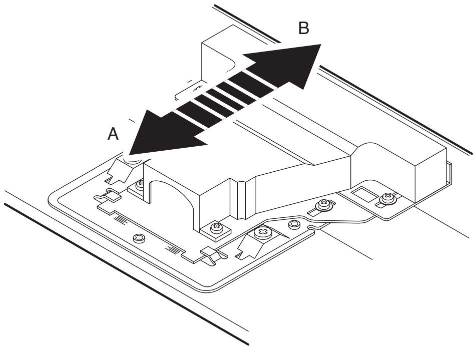
When the copy image is longer than the original, move in the direction of B.

When the copy image is shorter than the original, move in the direction of A.

One scale of scribe line corresponds to 0.2%.

At that time, fix so that the CCD unit is in parallel with the scales on the front frame side and on the rear frame side of the CCD unit base.

∗ At that time, fix the CCD unit so that it is in parallel with the line marked in procedure 9).



12) Make a copy, and check the copy magnification ratio.

If the copy magnification ratio is outside the range of 100% ± 1%, repeat procedures 9) to 11) until it is in the range.

Note: Due to the structure of the optical system, when the CCD unit fixing position is changed with SIM 48-1 set to 50, the copy magnification ratio is adjusted to the specified level (100 ± 1.0%) and the specified resolution is provided.

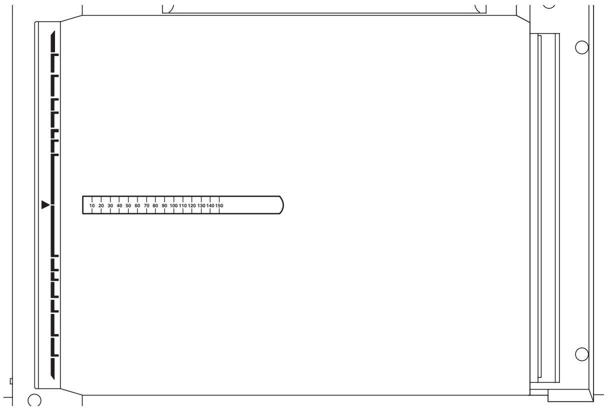
ADJ 8 Sub scanning direction copy magnification ratio adjustment

This adjustment must be performed in the following cases:

- When the copy magnification ratio in the copy image sub scanning direction is improper.
- When the scanner motor is replaced.
- When a U2 trouble occurs.
- When the MFP main PWB is replaced.
- When the EEPROM of the MFP main PWB is replaced.

Before this adjustment, perform the focus adjustment (CCD unit installing position adjustment).

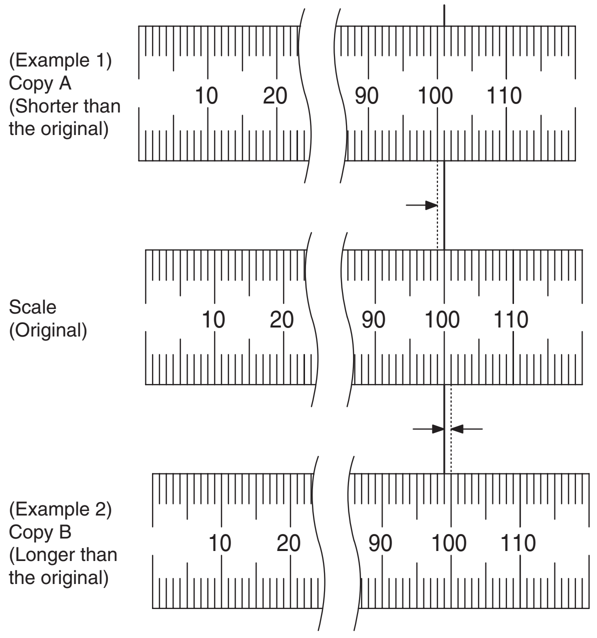
1) Place a scale on the original table as shown below.



2) Enter the SIM 48-1 mode.
3) Make a normal copy and obtain the copy magnification ratios.

Copy magnification ratio

$$= \frac{\text{(Original dimension – Copy dimension)}}{\text{Original dimension}} \text{ x } 100\ [\%]$$



4) Check that the copy magnification ratio is within the specified range (100 ± 1.0%).

If the copy magnification ratio is within the specified range (100 ± 1.0%), the adjustment is completed.

If not, perform the following procedure.

5) Change the scan mode adjustment value of SIM 48-1.

When the adjustment value is increased, the sub scanning direction copy magnification ratio is increased.

A change in the adjustment value by 1 corresponds to a change in the copy magnification ratio by about 0.1%.

Repeat procedures 3) to 5) until the coy magnification ratio is within the specified range (100 ± 0.28%).

Note: Fix the adjustment value of SIM 48-1 adjustment mode (F – R) to 50.

ADJ 9 Main scanning direction copy image position adjustment (Scanner (reading) section)

This adjustment must be performed in the following cases:

When the scanner (reading) section is disassembled.

When the scanner (reading) unit is replaced.

When the RSPF section is disassembled.

When the RSPF unit is installed.

When the RSPF unit is replaced.

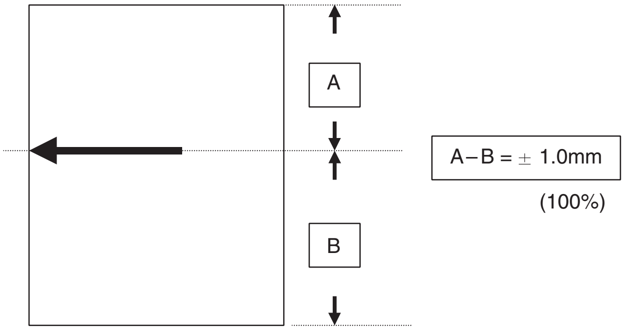
When a U2 trouble occurs.

When the MFP main PWB is replaced.

When the EEPROM of the MFP main PWB is replaced.

1) Make a copy in the adjustment chart adjustment mode. (Document table or RSPF)
2) Check the copy image center position.

If A – B = ± 1.0mm, there is no need to adjust.



If the above condition is not satisfied, perform the following procedures.

3) Enter the SIM 50-12 mode.
4) Select the adjustment mode with the scroll key.
5) Enter the adjustment value with the 10-key and press the [OK] key.

The entered value is set.

∗ When the set value is increased, the main scanning print position is shifted by 0.1mm to the front side.

Repeat procedures 2) to 5) until the above condition is satisfied.

ADJ 10 Copy image position/image loss/void area adjustment

This adjustment must be performed in the following cases:

- When the scanner (reading) section is disassembled.
- When the scanner (reading) unit is replaced.
- When the resist roller section is disassembled.
- When a U2 trouble occurs.
- When the MFP main PWB is replaced.
- When the EEPROM of the MFP main PWB is replaced.

This adjustment uses SIM 50-2 and SIM 50-1.

The above two simulations are used in the following manner.

SIM 50-2: Rough adjustment

SIM 50-1: Fine adjustment

If the desired value is obtained by SIM 50-2, there is no need to perform SIM 50-1.

(Adjustment item)

No.	Adjustment item	SIM 50-2 set item	SIM 50-1 set item	Adjustment value
1	Lead edge image loss	IMAGE LOSS	IMAGE LOSS	4.0 ± 1.0mm
2	Lead edge void area	DEN-A	DEN-A	4.0 ± 1.0mm
3	Rear edge void area	DEN-B	DEN-B	4.0 ± 1.0mm
4	Image reference position		RRC-A	
5	Paper timing		RRC-B	
6	Distance between image lead edge position and scale of 10mm x 10	L1		
7	Distance between paper lead edge and image lead edge x 10	L2		

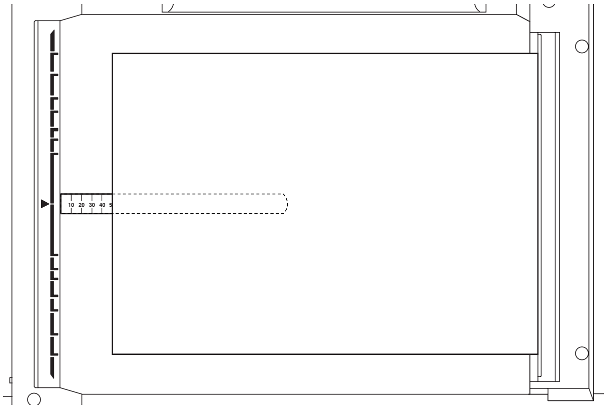
Adjustment items 1 to 3 can be adjusted either with SIM 50-1 or with SIM 50-2.

The adjustment values 6 and 7 will affect the adjustment items 4 and 5 automatically.

Therefore, adjusting the items 6 and 7 will lead to the same result as adjusting the items 4 and 5 directly.

1) Place a scale on the original table as shown below.

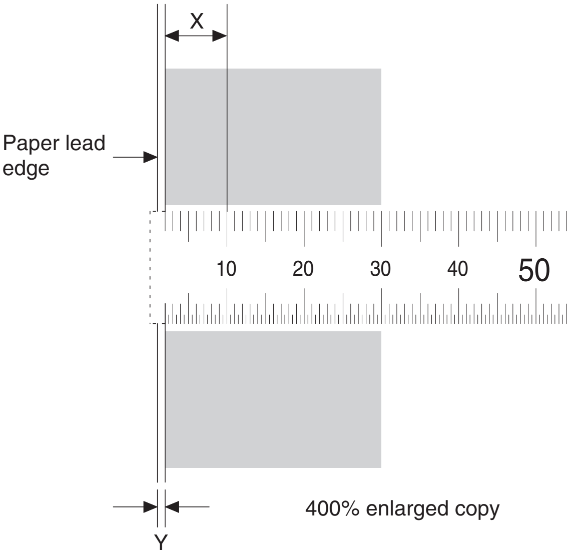
   Note that the scale must be placed in parallel with the scanning direction and that the scale lead edge must be in close contact with the original guide plate.



2) Enter the SIM 50-2 mode.
3) Set IMAGE LOSS and DEN-A to "20".
4) Set all the set items of L1 and L2 to "0".
5) Make a copy at 400%. (Original table mode)
6) Measure the copied image dimensions X and Y.

   X: Distance between the copy image lead edge and the scale of 10mm.

   Y: Distance between the paper lead edge and the copy image lead edge.



7) Multiply X, Y, and Z (unit: mm) by 10 to obtain L1, L2 respectively. Enter the values of L1, L2, and L3.

   L1 = X x 10

   L2 = Y x 10
8) Cancel the simulation, make a copy, and check that the lead edge image loss and void area are within the specified range shown below.

   Lead edge image loss: 4.0 ± 1.0mm

   Lead edge void area: 4.0 ± 1.0mm

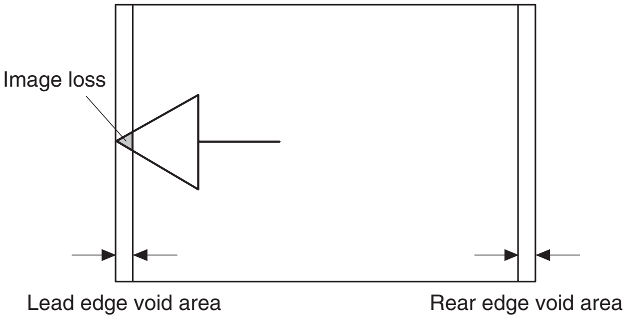
If the above specifications are not satisfied, perform the following procedures.

9) Enter the SIM 50-1 mode.
10) Set a scale in the same manner as procedure 3), and make a copy at 50% and at 400% in the original table mode.
11) Measure the distance between the paper lead edge and the copy image lead edge of 50% copy and of 400% copy.
12) Check that there is no difference between the above distance of 50% copy and that of 400% copy.

    If there is a difference of 1.5mm or above, change the adjustment value of RRC-A.

Repeat procedures 10) to 12) until the above specification is satisfied.

13) If the lead edge void area is not within the specified range, change the DEN-A value.
14) If the lead edge void area is not within the specified range, change the IMAGE LOSS value.
15) If the rear edge void area is not within the specified range, change the DEN-B value.



	Adjustment item	Adjustment value	Note
IMAGE LOSS	Lead edge image loss	4.0 ± 1.0mm	The greater the set value is, the greater the image loss is.
DEN-A	Lead edge void area	4.0 ± 1.0mm	The greater the set value is, the greater the void area is.
DEN-B	Rear edge void area	4.0 ± 1.0mm	The greater the set value is, the greater the void area is.

ADJ 11 Copy color balance/density adjustment

(1) Note for the copy color balance/density adjustment

(Necessary conditions for execution of the copy color balance/density adjustment)

Before execution of the copy color balance/density adjustment, check that all the adjustments related to the copy color balance and density have been completed properly.

The importance level is as shown below.

(Adjustment items which directly affect the copy color balance and density and must be checked or adjusted before execution of the image quality adjustment)

1) Adjustment items: ADJ 2, ADJ 3, ADJ 4

JOB No	ADJUSTMENT ITEM LIST			SIMULATION
ADJ 2	Image density sensor adjustment			44-2/44-13
ADJ 3	Image focus, image skew adjustment (LED (writing) unit)			64-1/61-4
ADJ 4	Image registration adjustment	ADJ 4A	Image registration adjustment (Auto adjustment)	50-22
		ADJ 4B	Image registration adjustment (Manual adjustment)	50-20

The user color balance adjustment must be set to the center (default).

Item	Purpose	Note
User color balance setting: Default (Center) (Special function)	Set the color balance to the standard state.	Check that it is set to the center.

The set value of SIM 46-27 is set to the default.

SIM No	Display/Item		Setting (Default)	Content	Phenomenon when the set value is changed	Phenomenon occurring when the adjustment value is not within the normal value range.	Note
46-27	A	BLACK TEXT (SLOPE)	50	Black image edge section gamma (tilt) adjustment (Black text and black line reproduction adjustment)	When the set value is increased, the contrast of black line and black text outline sections is reduced. On the contrary, when the set value is decreased, the contrast is increased. (Sharpness of black text and black lines is changed.) (Text/Printed photo, Text, Text/Photograph copy mode)	The contrast and density of lines and text outline section are changed. (Sharpness of text and lines is changed.) (Text/Printed photo, Text, Text/Photograph copy mode)	For image quality adjustment, set to 50.
	B	BLACK TEXT (INTERCEPT)	50	Black image edge section density (overall level) adjustment (Black txt and black line reproduction adjustment)	The density of black lines and black text outline is changed. (Text/Printed photo, Text, Text/Photograph copy mode)		

The set value of the following simulation must be set to the default.

SIMNo	Item	Setting (Default)	Phenomenon when the set value is changed	Note
46-1	A – R	50	The density and color balance in the low density section of color copy are changed.	Set to the default when adjusting the copy quality. Do not adjust the density in the low density section by using this simulation.
46-2	A – K	50	The density in the low density section of monochrome copy is changed.	
46-10 to 16	A – O	500	The color copy density and color balance are changed. (each copy mode)	Set to the default when adjusting the copy quality.
46-20	A – O	500	The color copy density and color balance of all copy modes are changed.	Set to the default when adjusting the copy quality.

The following functions (HV/HT/TC/RRM/MD) of SIM 44-1 must be set to Enable.

Item		Setting	Phenomenon when set to Disable	
HV	Image forming section correction (process correction) (High-density image density correction)	ENABLE	The developing bias voltage correction and the main charger grid voltage correction are not performed.	Insufficient image density, background coy, improper color balance
HT	Half-tone image density correction	ENABLE	The half-tone image density correction is not performed.	Improper half-tone image density, background copy, improper color balance, tone jump
HT (PRT)	Half-tone image density correction (Printer)	ENABLE	The half-tone image density correction is not performed.	Improper half-tone image density, background copy, improper color balance, tone jump
TC	Transfer output correction	ENABLE	Correction of change due to humidity and correction of the transfer voltage are not performed.	Half-ton image section roughness, improper image density, insufficient density inside of image outlines
RRM	RRM speed correction	ENABLE	Correction of change due to humidity and correction of the rotate speed are not performed.	Improper color balance, roughness, background coy, toner dispersion, improper image density, image deflection, image flow, image dirt
MD	Photoconductor membrane decrease (sensitivity/ potential) correction	ENABLE	Correction of use frequency (sensitivity change) of OPC drum is not performed. (Main charger grid voltage correction)	Improper image density, background copy
MD (PRT_BK)	Photoconductor membrane decrease (sensitivity/ potential) correction (Printer: monochrome)	ENABLE	Correction of use frequency (sensitivity change) of OPC drum is not performed. (Main charger grid voltage correction)	Improper image density, background copy
AR	Image registration automatic adjustment		Does not affect during image quality adjustment.	
AR CHK	YES/NO of error judgment in image registration automatic adjustment		Does not affect during image quality adjustment.	

(Adjustment items which affect the copy color balance/density but need not to be adjusted frequently. When, however, a trouble occurs, check and adjustment must be made.)

1) Adjustment item: ADJ 1, ADJ 7, ADJ 12, ADJ 13

JOB No	ADJUSTMENT ITEM LIST			SIMULATION
ADJ 1	High voltage adjustment	ADJ 1A	Main charger grid voltage adjustment	8-2
		ADJ 1B	DV bias voltage adjustment	8-1
		ADJ 1C	Transfer voltage adjustment	8-6
ADJ 7	Copy image focus (main scanning direction copy magnification ratio) adjustment (CCD unit position adjustment)			48-1
ADJ 12	Fusing pressure adjustment			
ADJ 13	Fusing paper guide position adjustment			

(Relationship between the service contents and the copy color balance/density adjustment)

Note that procedures before and after the copy color balance/density adjustment differ depending on the machine status and the servicing job contents.

Perform proper procedures according to the flow of the copy color balance/density adjustment.

There are following five major cases:

1) When installing
2) When periodic maintenance
3) When consumable part is replaced in repair work
4) When consumable part is not replaced in repair/checking work
5) Other repair/check

(2) Copy color balance/density adjustment procedure flow

Follow the flowchart to perform the copy color balance/density adjustment.

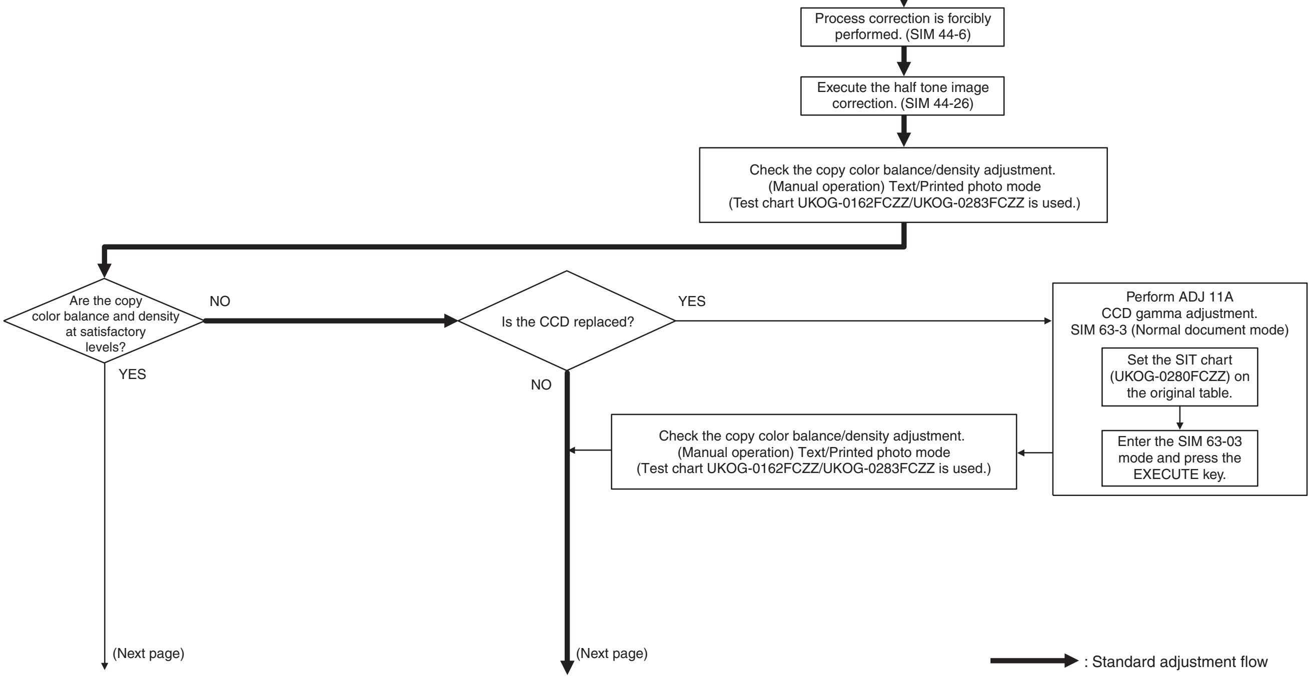
START

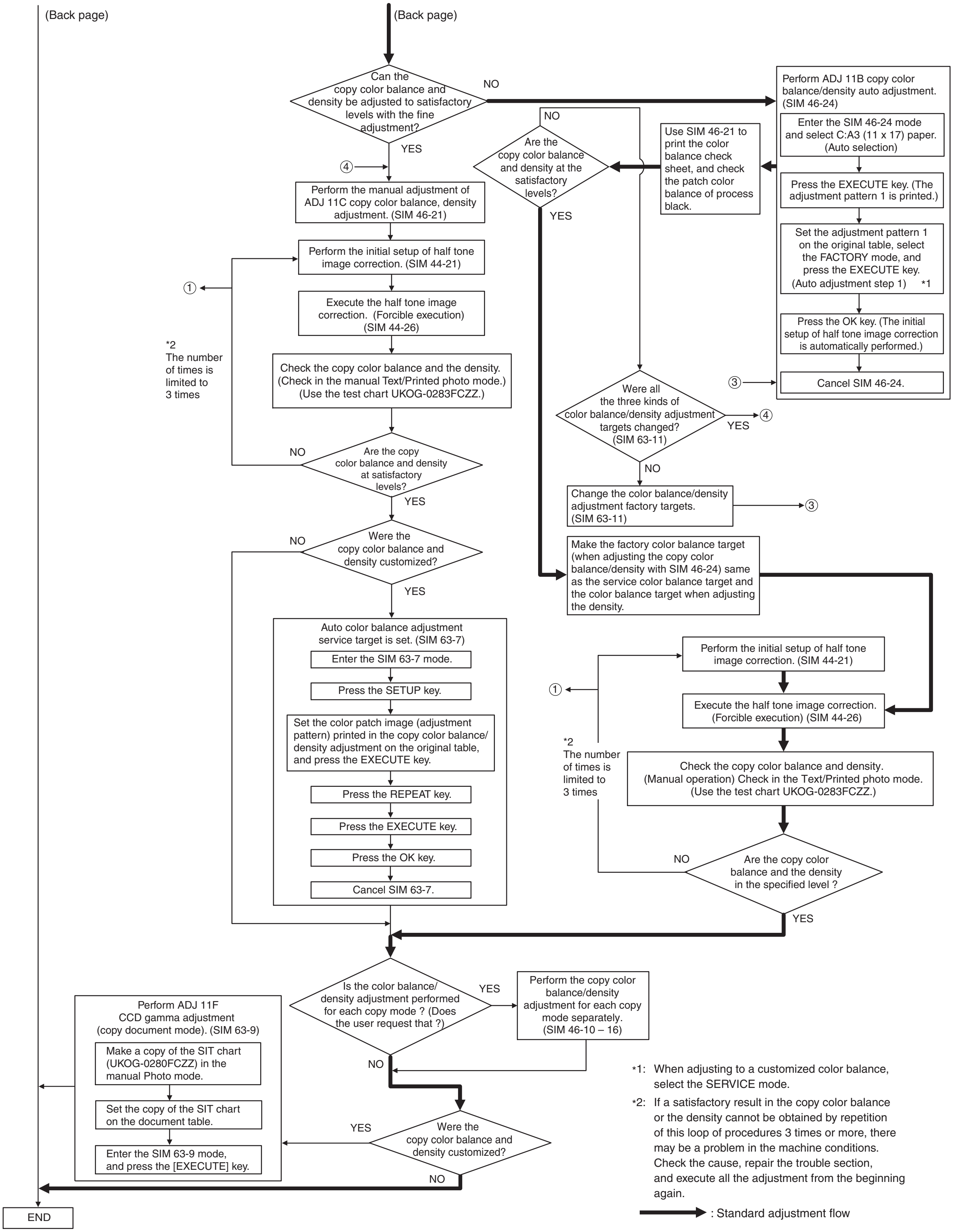
①'

JOB No	Work item	Simulation	When installing	When servicing (When a consumable part is replaced)/maintenance					When in repair/check (without replacing consumable parts)
				After replacing OPC drum	After replacement of the image density sensor	After replacing transfer belt	After cleaning scanner (reading) section	When in periodic maintenance	
ADJ 2	Image density sensor adjustment	44-2/44-13			*	*		*	
	OPC drum counter clear	24-7		*				*	
	Transfer section waste toner counter clear	24-8				*		*	
	Set the half tone correction level to zero. (Reset)	44-27		*	*	*			

ADJ 3	Image focus, image skew adjustment (LED (writing) unit)	64-1/61-4	*	
ADJ 4	Image registration adjustment	50-22/50-20	*	

The necessary work items for each condition are marked with " *."
When replacing a consumable part, /when repairing or checking (without replacement of a consumable part) /
when installing the machine, follow the workflow below.


Process correction is forcibly performed. (SIM 44-6)
Execute the half tone image correction. (SIM 44-26)
Check the copy color balance/density adjustment. (Manual operation) Text/Printed photo mode (Test chart UKOG-0162FCZZ/UKOG-0283FCZZ is used.)
Are the copy color balance and density at satisfactory levels?
NO
YES
Is the CCD replaced?
YES
NO
Perform ADJ 11A CCD gamma adjustment. SIM 63-3 (Normal document mode)
Set the SIT chart (UKOG-0280FCZZ) on the original table.
Enter the SIM 63-03 mode and press the EXECUTE key.
Check the copy color balance/density adjustment. (Manual operation) Text/Printed photo mode (Test chart UKOG-0162FCZZ/UKOG-0283FCZZ is used.)
(Next page)
(Next page)
: Standard adjustment flow


(Back page)
(Back page)
Can the copy color balance and density be adjusted to satisfactory levels with the fine adjustment?
NO
YES
④
Perform ADJ 11B copy color balance/density auto adjustment. (SIM 46-24)
Enter the SIM 46-24 mode and select C:A3 (11 x 17) paper. (Auto selection)
Press the EXECUTE key. (The adjustment pattern 1 is printed.)
Set the adjustment pattern 1 on the original table, select the FACTORY mode, and press the EXECUTE key. (Auto adjustment step 1) *1
Press the OK key. (The initial setup of half tone image correction is automatically performed.)
③
Cancel SIM 46-24.
Use SIM 46-21 to print the color balance check sheet, and check the patch color balance of process black.
NO
Are the copy color balance and density at the satisfactory levels?
YES
Perform the manual adjustment of ADJ 11C copy color balance, density adjustment. (SIM 46-21)
Perform the initial setup of half tone image correction. (SIM 44-21)
①
Execute the half tone image correction. (Forcible execution) (SIM 44-26)
*2 The number of times is limited to 3 times
Check the copy color balance and the density. (Check in the manual Text/Printed photo mode.) (Use the test chart UKOG-0283FCZZ.)
NO
Are the copy color balance and density at satisfactory levels?
YES
Were all the three kinds of color balance/density adjustment targets changed? (SIM 63-11)
YES
④
NO
Change the color balance/density adjustment factory targets. (SIM 63-11)
③
NO
Were the copy color balance and density customized?
YES
Make the factory color balance target (when adjusting the copy color balance/density with SIM 46-24) same as the service color balance target and the color balance target when adjusting the density.
Auto color balance adjustment service target is set. (SIM 63-7)
Enter the SIM 63-7 mode.
Press the SETUP key.
Set the color patch image (adjustment pattern) printed in the copy color balance/density adjustment on the original table, and press the EXECUTE key.
Press the REPEAT key.
Press the EXECUTE key.
Press the OK key.
Cancel SIM 63-7.
Perform the initial setup of half tone image correction. (SIM 44-21)
①
Execute the half tone image correction. (Forcible execution) (SIM 44-26)
*2 The number of times is limited to 3 times
Check the copy color balance and density. (Manual operation) Check in the Text/Printed photo mode. (Use the test chart UKOG-0283FCZZ.)
NO
Are the copy color balance and the density in the specified level ?
YES
Is the color balance/density adjustment performed for each copy mode ? (Does the user request that ?)
YES
Perform the copy color balance/density adjustment for each copy mode separately. (SIM 46-10 – 16)
NO
Perform ADJ 11F CCD gamma adjustment (copy document mode). (SIM 63-9)
Make a copy of the SIT chart (UKOG-0280FCZZ) in the manual Photo mode.
Set the copy of the SIT chart on the document table.
Enter the SIM 63-9 mode, and press the [EXECUTE] key.
YES
Were the copy color balance and density customized?
NO
END
: Standard adjustment flow

*1: When adjusting to a customized color balance, select the SERVICE mode.

*2: If a satisfactory result in the copy color balance or the density cannot be obtained by repetition of this loop of procedures 3 times or more, there may be a problem in the machine conditions. Check the cause, repair the trouble section, and execute all the adjustment from the beginning again.

Copy color balance and density check

Check the color balance and the density by making copies of Sharp gray chart and the serviceman chart.

a. Note for the copy color balance check

To check the copy color balance and density, use the Sharp gray chart and the serviceman chart. In the (Manual) Text/Printed photo mode, set the copy density level to 3, and make a color copy and a B/W copy.

At that time, all the color balance adjustments of the user adjustment mode must be set to the default (center).

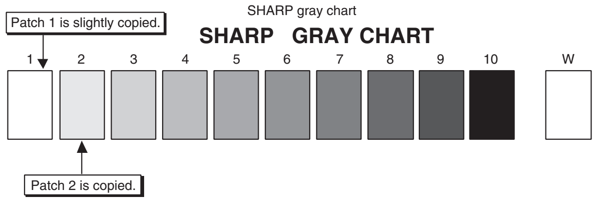
Be sure to use the specified paper for color.

[Sharp gray chart] (UKOG-0162FCZZ)

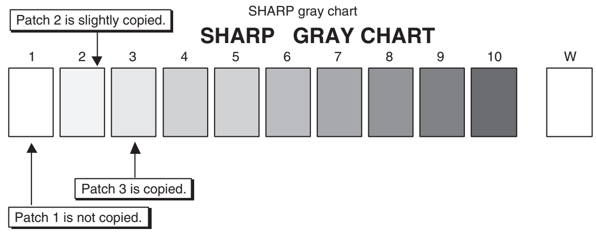
The copy image density of Sharp gray chart must be as follows:

Note: Use the color test chart (UKOG-0283FCZZ) to check the color balance.

(Color copy)



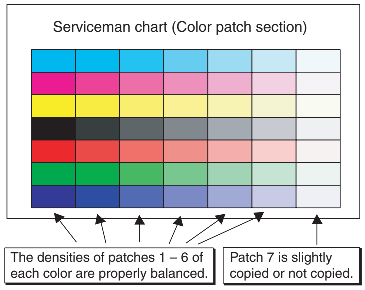
(Black-and-white copy)



[Serviceman chart] (UKOG-0283FCZZ)

Check the color balance of Serviceman chart copy is as shown below.

(Color copy)


Serviceman chart (Color patch section)
The densities of patches 1 – 6 of each color are properly balanced.
Patch 7 is slightly copied or not copied.

ADJ 11A CCD gamma adjustment (CCD calibration) (Normal document copy mode)

This adjustment must be performed in the following cases:

- When the CCD unit is replaced.
- When a U2 trouble occurs.
- When the MFP PWB is replaced.
- When the EEPROM of the MFP PWB is replaced.
- When replacing a part in the scanner (reading) section.

When the CCD unit is replaced, be sure to perform this adjustment.

(1) Precautions for adjustment

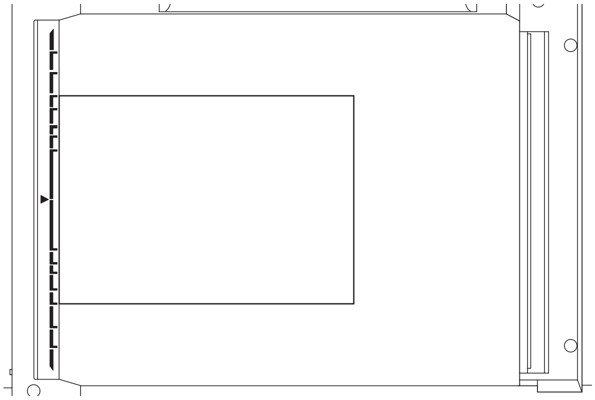
1) Check that the table glass and No. 1, 2, 3 mirrors and lenses are free from dust and dirt. (If there is dust and dirt, clean with alcohol.)
2) Check that there is no dirt or scratch on BK1 and BK2 patches of SIT chart (UKOG-0280FCZZ).

   If there is dirt, clean with alcohol.

   If there is scratch, replace the chart with new one.

(2) Adjustment procedures

1) Set the SIT chart (UKOG-0280FCZZ) to the left edge of the original table, and fit the center of SIT chart with the center of the glass holder.



When SIT chart is not available, execute SIM 63-5 to set the CCD gamma to the default. This method, however, provides a lower adjustment accuracy than the method by using SIT chart.

Note: Check that the SIT chart (UKOG-0280FCZZ) is closely placed on the original table.

2) With the SIT chart (UKOG-0280FCZZ) fixed, close the original cover.
3) Enter the SIM 63-03 mode, and press the [EXECUTE] key.

   The automatic adjustment is started. During the automatic adjustment, the [EXECUTE] key is highlighted. When the adjustment is completed, the key returns to the normal display.

Note: The SIT chart (UKOG-0280FCZZ) is affected by light (especially by ultraviolet rays) and temperature and humidity. Put it in a bag (clear file, etc.) and store in a dark place.

ADJ 11B Copy color balance adjustment (Auto adjustment)

This adjustment must be performed in the following cases:

- When a consumable part (developer, OPC drum, the transfer belt) is replaced.
- When the CCD unit is replaced.
- When a U2 trouble occurs.
- When the MFP PWB is replaced.
- When the EEPROM of the MFP PWB is replaced.

The color balance adjustment (auto adjustment) is the automatic adjustment of cyan, magenta, yellow, and black copy density with SIM 46-24.

(When this adjustment is performed, the color balance adjustments in all the copy modes are renewed.)

(Note for performing the color balance adjustment (Auto adjustment))

1) The print engine section must be properly adjusted.
2) CCD gamma adjustment must be properly adjusted.
3) When setting the color patch image (adjustment pattern) paper on the original table, place 5 sheets of white paper on the color patch image paper.
4) Be sure to use the specified color paper.

Before execution of the copy quality check and the copy quality adjustment, be sure to execute the following corrections forcibly to set the image forming section to the optimum state.

- Execute the process correction forcibly. (SIM 44-6)
- Execute the half-tone image correction forcibly. (SIM 44-26)

a. Outline

The color balance adjustment (auto adjustment) is the automatic adjustment of cyan, magenta, yellow, and black copy density with SIM 46-24 or user program.

There are following two modes of auto color balance adjustment:

1) Auto color balance adjustment by the serviceman (with SIM 46-24)
2) Auto color balance adjustment by the user (with the user program) (The color balance target becomes the service target.)

   The auto color balance adjustment by the user is provided in order to reduce the number of service calls.

   If the copy color balance is shifted by some reason, the user performs the color balance adjustment to correct it.

   If, however, there is a basic problem in the machine, or if the machine environment is changed largely, this function does not serve as an effective means.

   While the automatic color balance adjustment by the serviceman allows adjustment even when the machine environment is changed largely, providing normal color balance. If there is a basic problem in the machine, repair it and adjust to provide normal color balance.

   The above points must be fully understood for proper operation.

   When this adjustment is performed, the color balance adjustment of all the copy modes are changed.

b. Adjustment procedure

(Auto color balance adjustment by the serviceman)

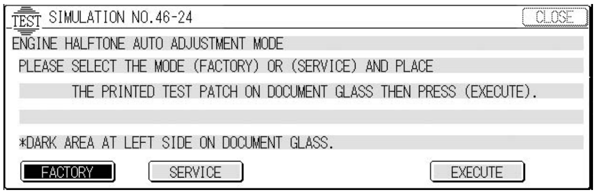
1) Enter the SIM 46-24 mode.
2) Press the [EXECUTE] key.

   (A3 or 11 x 17 paper is automatically selected.)

   The color patch image (adjustment pattern) is printed.
3) Set the color patch image (adjustment pattern) printed in procedure 2) on the original table so that the dark density side of the color patch image comes to the paper exit side. Place 5 sheets of white paper on the printed color patch image (adjustment pattern) paper.
4) Press the [FACTORY] key on the operation panel and press the [EXECUTE] key.

   The copy color balance adjustment (step 1) is automatically performed, and the color balance check patch image is printed. Wait for a while until the operation menu of procedure 5) is displayed.

   When the color balance is customized by the manual color balance (SIM 46-21) according to the user's request and then the color balance is registered as the service target by SIM 63-7, select the service target in order to adjust to that color balance.



SIMULATION NO.46-24

ENGINE HALFTONE AUTO ADJUSTMENT MODE

PLEASE SELECT THE MODE (FACTORY) OR (SERVICE) AND PLACE THE PRINTED TEST PATCH ON DOCUMENT GLASS THEN PRESS (EXECUTE).

*DARK AREA AT LEFT SIDE ON DOCUMENT GLASS.

Note: (Descriptions on the factory and the service key button in the color balance automatic adjustment menu)

There are two kinds of gamma targets for the color balance automatic adjustment: factory and service.

The factory key button and the service key button are used to select between them.

Factory target gamma: Standard color balance (Fixed)

Service target gamma: Color balance can be customized according to the user request. (Variable)

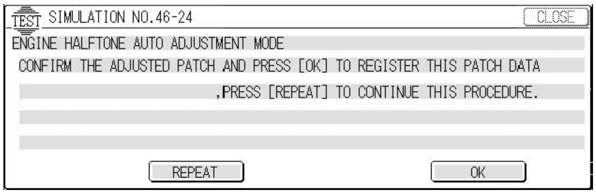
When shipping from the factory, the service target gamma data are same as the factory target gamma data.

Both are set to the standard color balance gamma.

In the service target, a customized color balance can be registered with SIM 63-7. In the factory target, it cannot be changed.

5) Press the [OK] key on the operation panel.

   The initial setup of half tone image correction is performed according to this adjustment data.



SIMULATION NO.46-24

ENGINE HALFTONE AUTO ADJUSTMENT MODE

CONFIRM THE ADJUSTED PATCH AND PRESS [OK] TO REGISTER THIS PATCH DATA ,PRESS [REPEAT] TO CONTINUE THIS PROCEDURE.

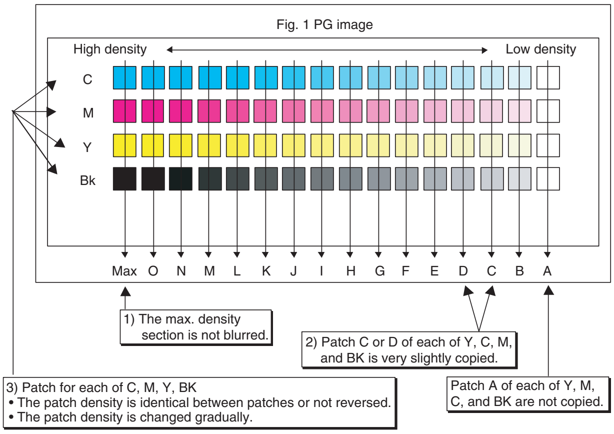
Note: When [OK] key is pressed, initial setup of half-tone image correction is started. During this operation, "Copy Quality is being adjusted" is displayed. It takes several minutes to complete this operation.

After completion of this operation, "Please quit this mode" is displayed.

Do not cancel the simulation until "Please quit this mode" is displayed.

6) Check that the color balance check patch image printed at last is within the specified range shown below.

Fig. 1 PG image



1) The max. density section is not blurred.

2) Patch C or D of each of Y, C, M, and BK is very slightly copied.

3) Patch for each of C, M, Y, BK
• The patch density is identical between patches or not reversed.
• The patch density is changed gradually.

Patch A of each of Y, M, C, and BK are not copied.

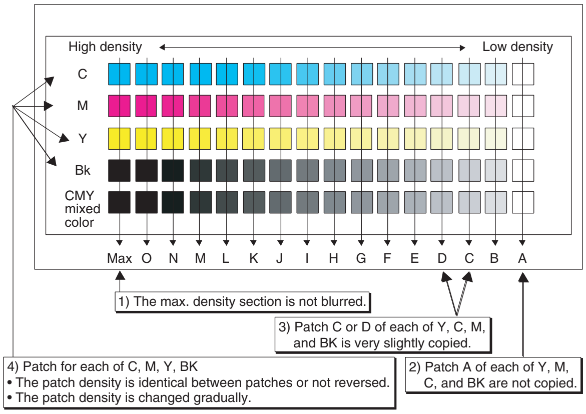
The print density should vary gradually from the lower density to the higher density without reversion of changing direction.

The density level of each color should be almost the same.

It is acceptable for patch B not to be copied.

Patch A is not copied.

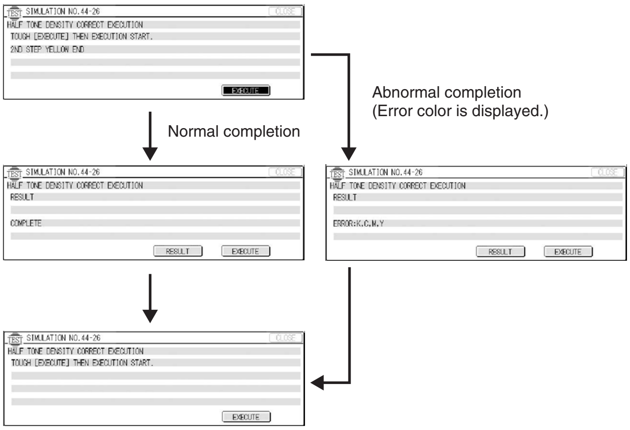
Use SIM 46-21 to print the color balance adjustment sheet and compare each process (CMY) black patch color balance and the black patch. This allows a correct check on the color balance adjustment result.


High density
Low density
C
M
Y
Bk
CMY mixed color
Max
O
N
M
L
K
J
I
H
G
F
E
D
C
B
A
1) The max. density section is not blurred.
3) Patch C or D of each of Y, C, M, and BK is very slightly copied.
4) Patch for each of C, M, Y, BK
• The patch density is identical between patches or not reversed.
• The patch density is changed gradually.
2) Patch A of each of Y, M, C, and BK are not copied.

If, however, the user requests to customize the color balance instead of using the standard color balance and the color balance is in a satisfactory level, go to Step 10).

If the color balance is not satisfactory, perform the manual color balance adjustment (ADJ 11C).

7) Execute the half tone image correction. (Forcible execution) (SIM 44-26)



```
SIMULATION NO.44-26
HALF TONE DENSITY CORRECT EXECUTION
 TOUGH [EXECUTE] THEN EXECUTION START.
 2ND STEP YELLOW END
```

```
SIMULATION NO.44-26
HALF TONE DENSITY CORRECT EXECUTION
 RESULT

 COMPLETE
```

```
SIMULATION NO.44-26
HALF TONE DENSITY CORRECT EXECUTION
 RESULT

 ERROR:K,C,M,Y
```

```
SIMULATION NO.44-26
HALF TONE DENSITY CORRECT EXECUTION
 TOUGH [EXECUTE] THEN EXECUTION START.
```

When [EXECUTE] key is pressed, it is highlighted and the operation is started. It takes several minutes to complete the operation. When the operation is completed, the screen returns to the original state.

After completion of the operation, cancel the simulation.

8) Use the test chart UKOG-0283FCZZ and check the copy color balance and the density in Text/Photo mode. (Refer to the section of the copy color balance and the density.)

If the copy color balance and density are not in the satisfactory level, perform the following procedures.

9) Perform initial setup of half tone image correction. (SIM 44-21)

10) Perform half tone image correction. (Forcible execution) (SIM 44-26)

11) Use the test chart UKOG-0283FCZZ and check the copy color balance and the density in manual Text/Printed photo mode. (Refer to the section of the copy color balance and the density.)

Repeat procedures 9) to 11) until they are at the satisfactory level.

However, repetition is limited to three times.

If a satisfactory result in the copy color balance or the density cannot be obtained by repetition of the above procedures 3 times or more, there may be a problem in some other sections.

Investigate the reason and repair or fix the problem, then perform all the procedures of print quality adjustment from the beginning.

If a satisfactory result in the copy color balance or the density cannot be obtained by the automatic adjustment, use SIM46-21 (ADJ 11C) (automatic adjustment).

ADJ 11C Copy color balance adjustment (Manual adjustment)

This adjustment must be performed in the following cases:

- When a consumable part (developer, OPC drum, the transfer belt) is replaced.
- When the CCD unit is replaced.
- When the scanner (reading) section is cleaned.
- When a U2 trouble occurs.
- When the MFP PWB is replaced.
- When the EEPROM of the MFP PWB is replaced.

The color balance adjustment (Manual) is used to manually adjust each color copy density (C, Y, M, K) (15 points for each color) when the result of the previous automatic adjustment is unsatisfactory or when a fine adjustment is required, or when the user requests to change (customize) the color balance.

a. Note for the adjustment

This adjustment is performed only for the color patch whose result of the previous automatic adjustment is unsatisfactory.

If the color balance is out of the normal conditions, execute SIM 46-24 to make the color balance adjustment (Auto) and then execute this adjustment. This sequence leads to a better work efficiency.

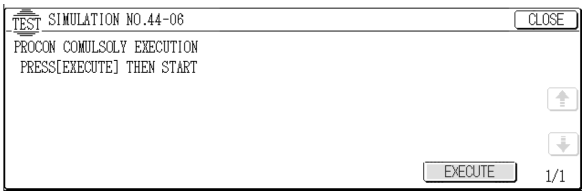
Before execution of the copy quality check and the copy quality adjustment, be sure to execute the following corrections forcibly to set the image forming section to the optimum state.

∗ Execute the process correction forcibly. (SIM 44-6)

∗ Execute the half tone image correction forcibly. (SIM 44-26)

b. Adjustment procedures

∗ Before executing the copy color balance adjustment (Manual), perform SIM 44-6 to make a compulsory process correction, updating the developing bias voltage and the main charger voltage to the latest levels.



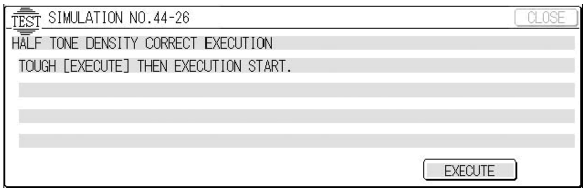
```
SIMULATION NO.44-06
PROCON COMULSOLY EXECUTION
 PRESS[EXECUTE] THEN START
```

When [EXECUTE] key is pressed, the operation is started.

It takes several minutes to complete the operation. When the operation is completed, "EXECUTE" is highlighted.

After completion of the operation, cancel the simulation.

∗ Before executing the copy color balance adjustment (Manual), perform SIM 44-26 to make a compulsory half tone correction, updating the engine color balance and the gradation.



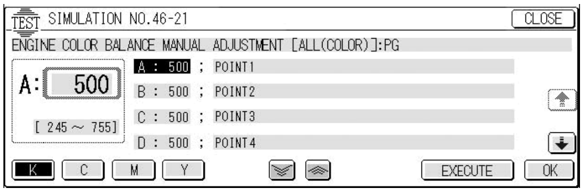
```
SIMULATION NO.44-26
HALF TONE DENSITY CORRECT EXECUTION
 TOUGH [EXECUTE] THEN EXECUTION START.
```

When [EXECUTE] key is pressed, the operation is started.

It takes several minutes to complete the operation. When the operation is completed, "EXECUTE" is highlighted.

After completion of the operation, cancel the simulation.

1) Enter the SIM 46-21 mode.



```
SIMULATION NO.46-21
ENGINE COLOR BALANCE MANUAL ADJUSTMENT [ALL(COLOR)]:PG
A: 500      A : 500 ; POINT1
            B : 500 ; POINT2
[ 245 ～ 755]  C : 500 ; POINT3
            D : 500 ; POINT4
```

2) Select PAPER SEL with the scroll key and select A3 (11 x 17) paper.

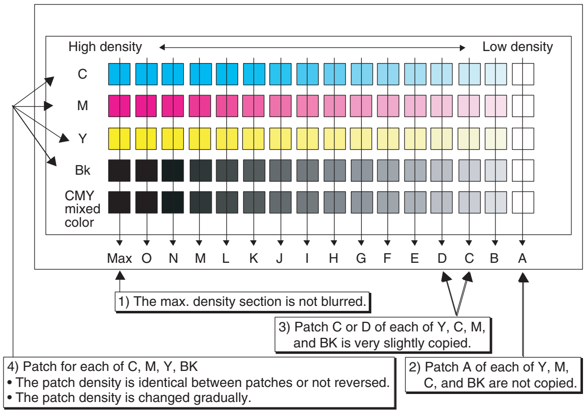
   Enter the set value corresponding to the paper feed section with A3 (11 x 17) paper in it, and press the OK key.

3) Press the [EXECUTE] key.

   The color balance adjustment pattern is printed.

4) Check that the printed pattern is in the following specification or in the desired color balance.

If not, perform the following procedures.



1) The max. density section is not blurred.

2) Patch A of each of Y, M, C, and BK are not copied.

3) Patch C or D of each of Y, C, M, and BK is very slightly copied.

4) Patch for each of C, M, Y, BK
- The patch density is identical between patches or not reversed.
- The patch density is changed gradually.

The print density should vary gradually from the lower density to the higher density without reversion of changing direction.

The density level of each color should be almost the same.

It is acceptable for patch B not to be copied.

Patch A is not copied.

When, however, the color balance is adjusted according to the users request, there is no need to adjust to the standard color balance as stated above.

5) Select the color to be adjusted and select the adjustment point with the scroll key.

6) Enter the adjustment value with the 10-key and press the [OK] key.

   The adjustment value can be selected in the range of 245 to 755 (1 to 999). When SIM 46-24 is used to perform the automatic color balance and the density adjustment, all the set values of this simulation are set to 500.

   To increase the density, increase the adjustment value. To decrease the density, decease the adjustment value.

   Repeat procedures 3) to 6) until the condition of procedure 4) is satisfied.

When the overall density is low or patch A is copied with a high density, use the arrow keys to change all the adjustment values of A to O simultaneously and uniformly.

Then perform the patch density adjustment. This allows to make an efficient adjustment.

By using the black patch as the reference, adjust so that the color balance of the black patch of each process (CMY) in A to O becomes virtually same as the black patch.

In this simulation mode, press CLEAR key to return to the normal copy mode and make actual copies of the service chart and user documents. Check the adjustment result.

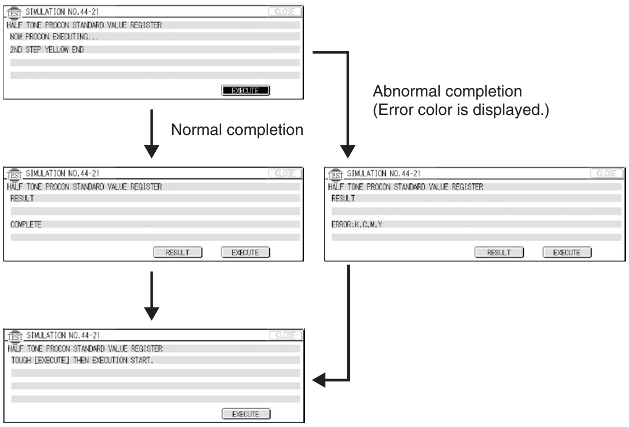
7) Execute SIM 44-21.

   The initial setup of half tone image correction is performed.

This procedure is to store the copy color balance adjustment data as the reference data for half-tone correction.

This procedure should be always executed immediately after completion of ADJ 11C (Color balance adjustment (Manual)) with SIM 46-21.

When ADJ 11B (Color balance adjustment (Auto)) is performed with SIM 46-24, this procedure is automatically performed.



```
SIMULATION NO.44-21
HALF TONE PROCON STANDARD VALUE REGISTER
 NOW PROCON EXECUTING...
 2ND STEP YELLOW END
```

Normal completion

```
SIMULATION NO.44-21
HALF TONE PROCON STANDARD VALUE REGISTER
 RESULT

 COMPLETE
```

Abnormal completion
(Error color is displayed.)

```
SIMULATION NO.44-21
HALF TONE PROCON STANDARD VALUE REGISTER
 RESULT

 ERROR:K.C.M.Y
```

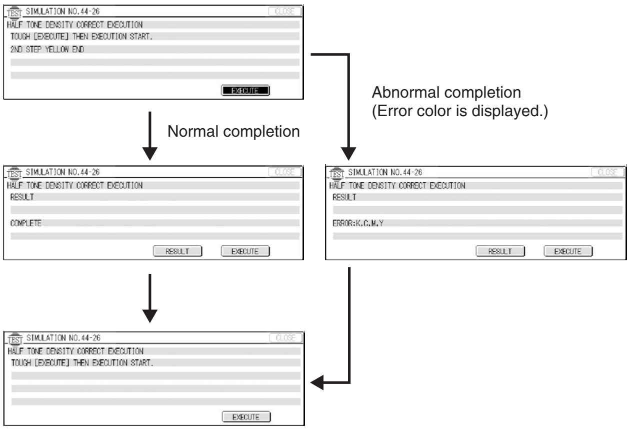
```
SIMULATION NO.44-21
HALF TONE PROCON STANDARD VALUE REGISTER
 TOUGH [EXECUTE] THEN EXECUTION START.
```

When [EXECUTE] key is pressed, it is highlighted and the operation is started.

It takes several minutes to complete the operation. When the operation is completed, the screen returns to the original state.

After completion of the operation, cancel the simulation.

8) Execute the half tone image correction. (Forcible execution) (SIM 44-26)



```
SIMULATION NO.44-26
HALF TONE DENSITY CORRECT EXECUTION
 TOUGH [EXECUTE] THEN EXECUTION START.
 2ND STEP YELLOW END
```

Normal completion

```
SIMULATION NO.44-26
HALF TONE DENSITY CORRECT EXECUTION
 RESULT

 COMPLETE
```

Abnormal completion
(Error color is displayed.)

```
SIMULATION NO.44-26
HALF TONE DENSITY CORRECT EXECUTION
 RESULT

 ERROR:K.C.M.Y
```

```
SIMULATION NO.44-26
HALF TONE DENSITY CORRECT EXECUTION
 TOUGH [EXECUTE] THEN EXECUTION START.
```

When [EXECUTE] key is pressed, it is highlighted and the operation is started. It takes several minutes to complete the operation. When the operation is completed, the screen returns to the original state.

After completion of the operation, cancel the simulation.

9) Use the test chart UKOG-0283FCZZ and check the copy color balance and the density in the Text/Printed photo mode. (Refer to the section of the copy color balance and the density check.)

   If the copy color balance and the density are not in the specified level, repeat procedures 7) through 9) until they are in the specified level.

However, repetition is limited to three times. If repetition of the above procedures does not set the copy color balance and the density to the specified level, there may be some other reason.

Investigate the reason and repair or fix the problem, then perform all the procedures of print quality adjustment from the beginning.

10) When the color balance is customized, register the color balance as the service target by SIM 63-7.

    When the color balance is not customized, there is no need to perform this work.

    If the customized color balance is registered as the service target, when the color balance is adjusted in the next time, the automatic color balance adjustment mode can be used.

    In the next color balance adjustment, select the service target color balance in the automatic color balance adjustment mode, and the color balance will be adjusted to the same color balance as registered this time.

(Auto color balance adjustment service color balance target gamma setup)

a. Outline

Auto color balance adjustment is performed with a certain color balance (gamma) as a target.

There are following three kinds of targets:

- Factory color balance (Gamma) target
- Service color balance (Gamma) target
- User color balance (Gamma) target)

Only the service target among them allows optional setup of a color balance (gamma) target.

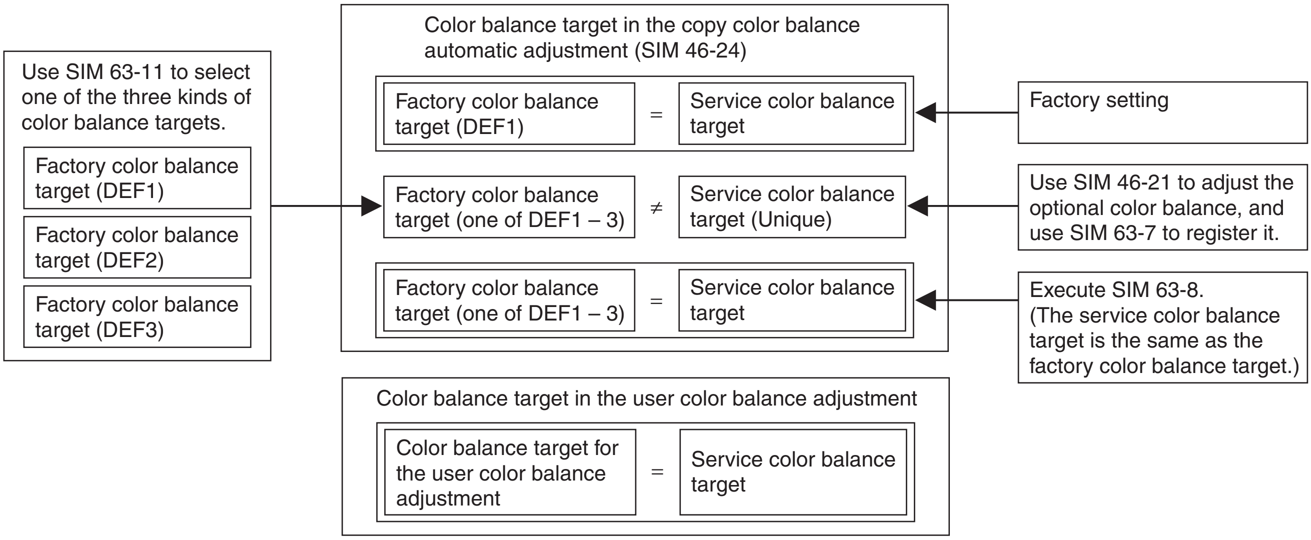
This setup must be performed in the following cases.

- When the copy color balance and the density adjustment is manually performed. (SIM 46-21)
- When a U2 trouble occurs.
- When the MFP PWB is replaced.
- When the EEPROM on the MFP PWB is replaced.
- When the user requests to customize the color balance.
- When the service color balance target gamma is found to be incorrect.

Color balance target for copy color balance adjustment

Kind		Description
A	Factory color balance (Gamma) target	There are three kinds of color balance targets and each one has its color balance specified by the design. Use SIM 63-11 to select one of them as the factory target. The default (factory setting) is the color balance with emphasis on color reproduction (DEF1).
B	Service color balance (Gamma) target	This target is used when the user requests to use a unique color balance. However, the unique color balance requested by the user must be registered (set) in advance. The serviceman adjusts the color balance requested by the user with SIM 46-21, and registers (sets) it with SIM 63-7. This color balance target is used when the user performs the color balance adjustment. When, therefore, the service color balance target is changed, the color balance target of the color balance adjustment by the user is also changed. When, however, SIM 63-8 is executed, the color balance is set to the same as the factory color balance target set with SIM 63-11. The default (factory setting) is set to the color balance same as the factory color balance target with emphasis on color reproduction (DEF1). When the user does not request to set an optional color balance, be sure to use SIM 63-8 to set the color balance same as the factory color balance target.
C	User color balance (Gamma) target	Color balance same as the service color balance (gamma) target.When the service color balance target is changed, this color balance target is also changed.

Relationship of the factory target and the service target in the copy color balance adjustment (SIM 46-24) and the color balance target for the user color balance adjustment


Use SIM 63-11 to select one of the three kinds of color balance targets.
Factory color balance target (DEF1)
Factory color balance target (DEF2)
Factory color balance target (DEF3)
Color balance target in the copy color balance automatic adjustment (SIM 46-24)
Factory color balance target (DEF1)
=
Service color balance target
Factory color balance target (one of DEF1 – 3)
≠
Service color balance target (Unique)
Factory color balance target (one of DEF1 – 3)
=
Service color balance target
Factory setting
Use SIM 46-21 to adjust the optional color balance, and use SIM 63-7 to register it.
Execute SIM 63-8.
(The service color balance target is the same as the factory color balance target.)
Color balance target in the user color balance adjustment
Color balance target for the user color balance adjustment
=
Service color balance target

Factory target in the copy color balance adjustment (SIM 46-24)

Use SIM 63-11 to select one of the following color balances as the factory target.

These three color balances cannot be changed. (Fixed)

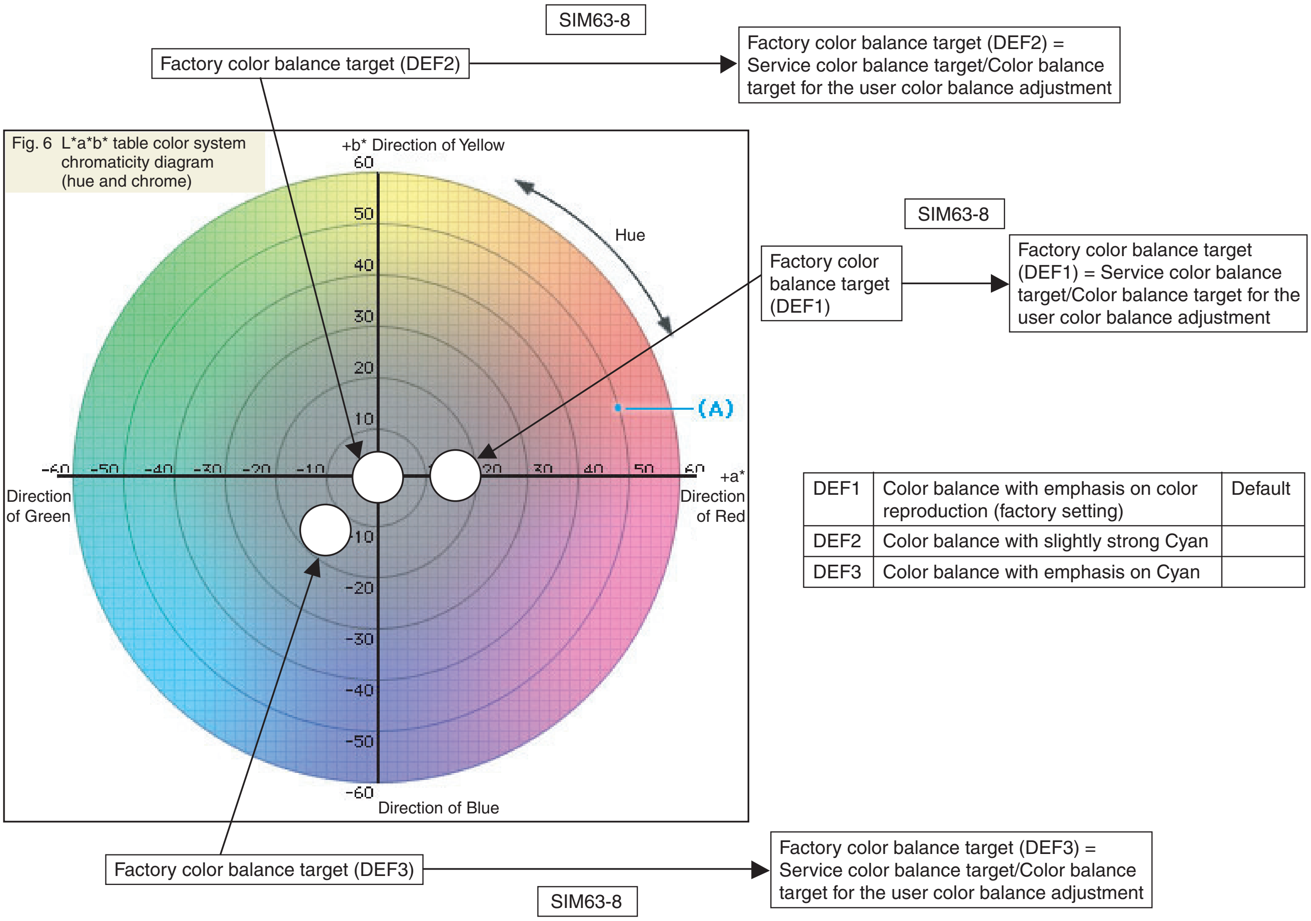


Fig. 6 L*a*b* table color system chromaticity diagram (hue and chrome)

SIM63-8
Factory color balance target (DEF2)
Factory color balance target (DEF2) = Service color balance target/Color balance target for the user color balance adjustment
+b* Direction of Yellow
Hue
SIM63-8
Factory color balance target (DEF1)
Factory color balance target (DEF1) = Service color balance target/Color balance target for the user color balance adjustment
(A)
60
50
40
30
20
10
-10
-20
-30
-40
-50
-60
-60 -50 -40 -30 -20 -10 20 30 40 50 60
Direction of Green
+a* Direction of Red
Direction of Blue
Factory color balance target (DEF3)
Factory color balance target (DEF3) = Service color balance target/Color balance target for the user color balance adjustment
SIM63-8

DEF1	Color balance with emphasis on color reproduction (factory setting)	Default
DEF2	Color balance with slightly strong Cyan	
DEF3	Color balance with emphasis on Cyan	

Service target in the copy color balance adjustment (SIM 46-24)

In the case of the service target, an optional color balance can be adjusted with SIM 46-21 and registered with SIM 63-7.

When, however, SIM 63-8 is executed, the color balance is set to the color balance of the factory target set by SIM 63-11.

Color balance target for user color balance adjustment

This is the same color balance as the service target in the copy color balance adjustment (SIM 46-24). When, therefore, the service target is changed, this target is also changed accordingly.

(Meaning of the service color balance target gamma data and purpose of registration)

This work must be executed only when the color balance is customized by SIM 46-21.

If the color balance is not customized, there is no need to perform this work.

Execute SIM 46-21 to adjust the color balance (Manual) according to the user request (customized color balance). Then use the adjustment pattern printed in this mode to register the service color balance target gamma data with SIM 63-7.

This will revise the service target gamma data.

It is recommendable to record the adjustment pattern printed in the above procedure. By using the adjustment pattern, the same color balance target can be registered in another machine. It is also useful to register the service color balance target gamma data again.

Be careful, however, not to fold the pattern or avoid discoloration and dirt.

Basically the service target gamma data must be registered immediately after completion of the color balance adjustment (Manual) with SIM 46-21.

If a considerable time has passed after completion of the color balance adjustment (Manual) with SIM 46-21, the color balance of the adjustment pattern after a considerable time differs from that before a considerable time. Do not use such an adjustment pattern.

Whether the service color balance target gamma data are correct or not can be determined by the following.

When the adjustment result of SIM 46-24 color balance adjustment (Auto) by selecting the service color balance target is abnormal or unsatisfactory:

In this case, the service color balance target gamma data may be incorrect.

The possible cause is incorrectness or abnormality of the color balance adjustment pattern used when registering the service color balance target gamma data of the color balance adjustment (Auto) with SIM 63-7.

The color balance adjustment pattern is printed after the color balance adjustment (Manual) with SIM 46-21. The possible cause lies in this procedure.

b. Setup procedure

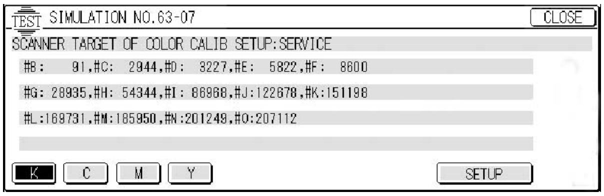
(Procedure to set the an optional color balance (gamma) as the service color balance target)

1) Two sheets of color patch image (adjustment pattern) are outputted in the copy color balance adjustment (manual adjustment) (SIM 46-21). (ADJ 11C)

   At that time, when the color balance is shifted from the standard, an adjustment is required. If not, there is no need to adjust.

   If an optional color balance is required according to the user's request, an adjustment is required.

2) Enter the SIM 63-7 mode.



```
#B:    91,#C:  2944,#D:  3227,#E:  5822,#F:  8600
#G: 28935,#H: 54344,#I: 86968,#J:122678,#K:151198
#L:169731,#M:185950,#N:201249,#O:207112
```

3) Press the [SETUP] key.

4) Set the color patch image (adjustment pattern) paper properly adjusted and printed in the copy color balance adjustment (manual adjustment) (SIM 46-21) (ADJ 11C) on the original table.

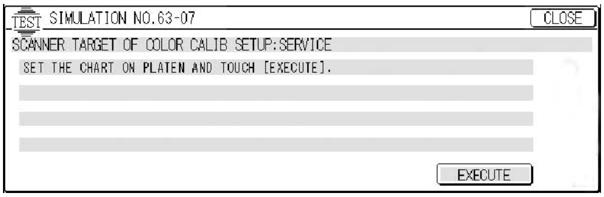
   The color patch image (adjustment pattern) printed by SIM 64-2 may be used. In this case, check that the printed image is proper. (The other color patch images (adjustment patterns) printed by another machine may be used.)

   Set the paper on the original table so that the darker density side comes on the left side. Then place 5 sheets of white paper on the color patch image (adjustment pattern).

If it is difficult to adjust the color balance adjustment (Manual) with SIM 46-21 satisfactorily level, do not register the service target gamma data with SIM 63-7.

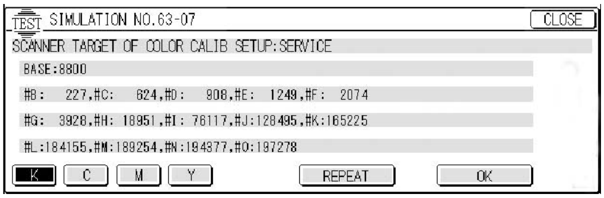
5) Press the [EXECUTE] key.

   The color patch image (adjustment pattern) is read.



```
SET THE CHART ON PLATEN AND TOUCH [EXECUTE].
```

6) Press the [REPEAT] key, set the second color patch image paper, and perform procedure 5) again.



```
BASE:8800
#B:   227,#C:   624,#D:   908,#E:  1249,#F:  2074
#G:  3928,#H: 18951,#I: 76117,#J:128495,#K:165225
#L:184155,#M:189254,#N:194377,#O:197278
```

The color balance (gamma) target setup level of each color can be checked with K/C/M/Y keys.

The setup level values must be in the ascending sequence of B – O. If there is no change or the sequence is reversed, it is judged as an abnormality.

In case of an abnormality, resolve the problem and check again.

7) Press the [OK] key.

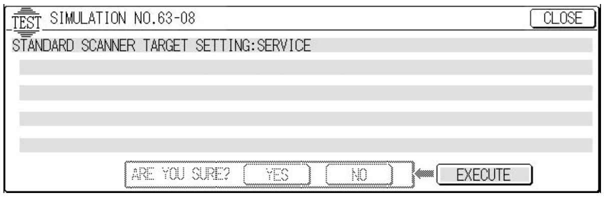
   The color balance (gamma) corresponding to the color patch image (adjustment pattern) printed in the copy color balance adjustment (manual adjustment) (ADJ 11C) is set as the service target.

(Method to set the color balance of the service color and the color balance target for the user color balance adjustment to the same color balance of the factory color balance target)

This adjustment must not be performed when the copy color balance is adjusted to the unique color balance according to the user's request with SIM 46-21 and the unique color balance is registered (set) as the color balance target of the service color.

* When the factory color balance target is changed with SIM 63-11, this adjustment must be executed without fail.

1) Enter the SIM 63-8 mode.



2) Press the [EXECUTE] key.

3) Press the YES key.

The color balanced target of the service color and the color balance target for the user color balance adjustment are set to the color balance same as that of the factory color balance target.

ADJ 11D Copy density adjustment in low-density area (Normally unnecessary to adjust.)

NOTE for SIM 46-1 and 46-2:

The major purpose of these simulations is to delete background copy simply.

SIM 46-1 and 46-2 are used to adjust the copy density in the low-density area, and they do not affect the density in the high-density area.

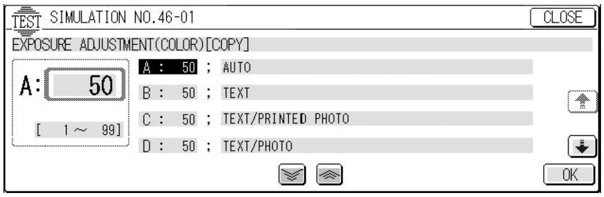
Note that the tone and the color phase may be changed greatly if the set value is changed greatly.

When an extreme background copy is produced, use ADJ 11C color balance adjustment (manual adjustment) (SIM 46-21) instead of this procedure.

The adjustment result of SIM 46-1 is reflected evenly to all the color copy modes.

The adjustment result of SIM 46-2 is reflected evenly to all the monochrome copy modes.

1) Enter the SIM 46-1 or 46-2 mode.



```
A: 50
[  1 ~  99]
A :  50 ; AUTO
B :  50 ; TEXT
C :  50 ; TEXT/PRINTED PHOTO
D :  50 ; TEXT/PHOTO
```

2) Select the copy mode to be adjusted with the scroll key.

3) Enter the adjustment value with the 10-key, and press the [OK] key.

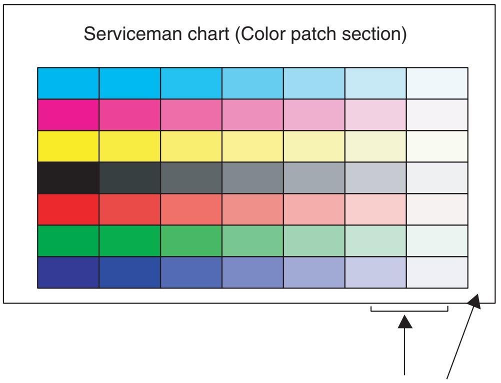
   To increase the density in the low-density area, set a greater adjustment value. To reduce the density, set a lower adjustment value. The adjustment in the low-density area can be adjusted individually for each copy mode.

   The greater the set value is, the greater the density in the low-density area is, and vice versa. (The density in the high-density area is not changed.)

4) Cancel the simulation mode, and make a copy in the normal mode to check the copy density in the white area and the low-density area by using the test chart (UKOG-0283FCZZ).

In this simulation mode, press CLOSE key to jump to the normal copy mode and make actual copies of the service chart and user documents. In this manner, the adjustment result can be checked.

The adjustment can be performed also by switching between the simulation mode and the normal copy mode alternately and checking the adjustment result with actual copies.



Check the copy density in the low-density area and the white area of the color patch section.

ADJ 11E Copy color balance density adjustment (each copy mode) (Normally unnecessary to adjust.)

This adjustment must be performed in the following cases:

- When a U2 trouble occurs.
- When the MFP PWB is replaced.
- When the EEPROM of the MFP PWB is replaced.

Used to adjust the gamma and the density in each copy mode individually. The adjustment in each copy mode is not required normally, but is performed when the user requests it.

1) Enter either of SIM 46-10 to 46-16 modes.

(Select the simulation according to the copy mode to be adjusted.)

Copy mode					Adjustment (Simulation)					
					Color balance/ density adjustment of each copy mode		Collective color balance/density adjustment of all copy modes		Low-density area color balance/density adjustment	
					Main	Sub	Main	Sub	Main	Sub
Full color	AUTO		Auto	Text/printed photo	46	12	46	21/20/24	46	1
	TEXT	NORMAL	Text	Normal		11				
		COLOR TONE ENHANCEMENT		Color emphasis						
		COPT TO COPY		Copy document		10				
	MAP	NORMAL	Map	Normal		11				
		COLOR TONE ENHANCEMENT		Color emphasis						
	PRINTED PHOTO	NORMAL	Printed photo	Normal		12				
		COLOR TONE ENHANCEMENT		Color emphasis						
		COPT TO COPY		Copy document		10				
	TEXT/PRINTED PHOTO	NORMAL	Text/printed photo	Normal		12				
		COLOR TONE ENHANCEMENT		Color emphasis						
		COPT TO COPY		Copy document		10				
	PHOTOGRAPH	NORMAL	Photograph	Normal		13				
		COLOR TONE ENHANCEMENT		Color emphasis						
	TEXT/PHOTO	NORMAL	Text/Photograph	Normal		14				
		COLOR TONE ENHANCEMENT		Color emphasis						
Single color (Affected by the adjustment result of full color mode)	TEXT	NORMAL	Text	Normal		25/(26)				
		COPT TO COPY		Copy document						
	MAP	NORMAL	Map	Normal						
	PRINTED PHOTO	NORMAL	Printed photo	Normal						
		COPT TO COPY		Copy document						
	TEXT/PRINTED PHOTO	NORMAL	Text/printed photo	Normal						
		COPT TO COPY		Copy document						
	PHOTOGRAPH	NORMAL	Photograph	Normal						
	TEXT/PHOTO	NORMAL	Text/Photograph	Normal						

Copy mode					Adjustment (Simulation)					
					Color balance/density adjustment of each copy mode		Collective color balance/density adjustment of all copy modes		Low-density area color balance/density adjustment	
					Main	Sub	Main	Sub	Main	Sub
Monochrome	AUTO1 (∗ 1)		Auto 1 (Japan)		46	15/(16)	46	21/20/ 24	46	2
	AUTO2 (∗ 1)		Auto 2 (Except Japan)							
	TEXT	NORMAL	Text	Normal						
		COPT TO COPY		Copy document						
	MAP		Map							
	PRINTED PHOTO	NORMAL	Printed photo	Normal						
		COPT TO COPY		Copy document						
	TEXT/PRINTED PHOTO	NORMAL	Text/printed photo	Normal						
		COPT TO COPY		Copy document						
	PHOTOGRAPH		Photograph							
	TEXT/PHOTO		Text/Photograph							

∗ The copy color balance and the density in the color enhancement mode are automatically determined by the adjustment result of the color normal mode. The adjustment unique to this mode cannot be made.

∗1: Select either one. The default setting differs depending on the destination.

2) Select the color to be adjusted with the color select key, and select the adjustment point with the scroll key.

3) Enter the adjustment value with the 10-key, and press the [OK] key.

The adjustment value can be selected in the range of 245 to 755. When the automatic color balance and the density are adjusted with SIM 46-24, all the set values of this simulation are set to 500.

To increase the density, increase the adjustment value. To decrease the density, decrease the adjustment value.

ADJ 11F CCD gamma adjustment (CCD calibration) (Copy document copy mode)

This adjustment is the CCD gamma adjustment (CCD calibration) for the copy document copy mode, and is different from the CCD gamma adjustment (CCD calibration) in the normal document copy mode (ADJ 11A). There are above two kinds of the CCD gamma adjustment (CCD calibration), and both adjustments are required.

This adjustment is required in the following cases:

- After execution of the CCD gamma adjustment (CCD calibration) (normal document copy mode) (ADJ 11A) and when the copy color balance is customized with SIM46-21.

(1) Note before adjustment

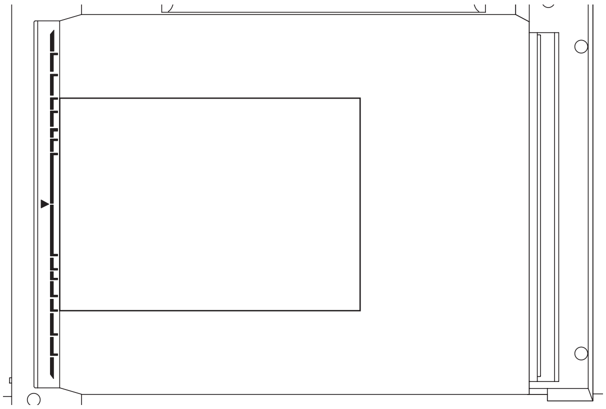
∗ Check that the table glass, No. 1/2/3 mirrors, and the lens surface are free from dirt and dust.
(If dirt or dust is found, clean with alcohol.)

∗ Check that the patches of BK1 and BK2 of the SIT chart (UKOG-0280 FCZZ are free from dirt or dust.
If dirt or dust is found, clean with alcohol.
If any damage is found, replace with a new one.

∗ Since this adjustment is based on the normal document copy mode CCD gamma adjustment (CCD calibration) (ADJ 11A), the said adjustment must have been completed before execution of this adjustment.
The copy color balance must also have been adjusted properly.

(2) Adjustment procedure

1) Place the SIT chart (UKOG-0280FCZZ) on the left edge of the document table, and fit the center of the SIT chart with the center of the glass holder.

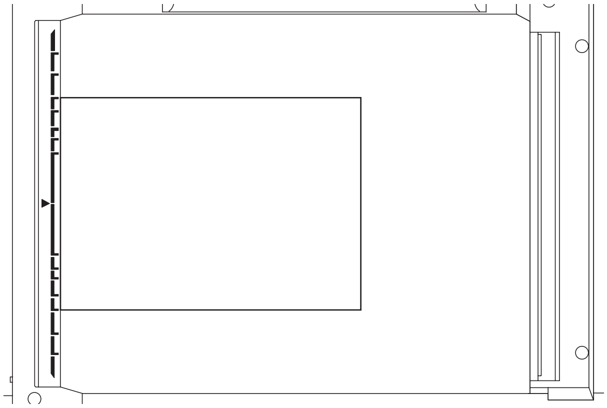


Note: Check that the SIT chart (UKOG-0280FCZZ) is in close contact with the document table.

2) Close the document cover without shifting the SIT chart (UKOG-0280FCZZ).

3) Make a copy in the Manual Photo mode.
(Be sure to use the specified copy paper.)

4) Set the copy made in procedure 3) on the document table so that the center of the copy paper comes to the center of the left edge of the document table.



5) Enter the SIM 63-09 mode and press the [EXECUTE] key.

The automatic adjustment is performed. During the adjustment, the [EXECUTE] key is highlighted. When the adjustment is completed, the [EXECUTE] key returns to the normal display.

6) Cancel the simulation mode.

Note: The SIT chart (UKOG-0280FCZZ) is affected by lights (especially ultra-violet rays) and temperature and humidity. Store it in a clear file (nylon file) in a dark place.

ADJ 11G Image edge section gamma/density adjustment (Black text and black line reproduction adjustment) (Normally unnecessary to adjust.)

The gamma or density of black toner component images is changed to adjust the reproduction of the profile of the black character and line optionally. Especially the thickness of fine black character and line is changed.

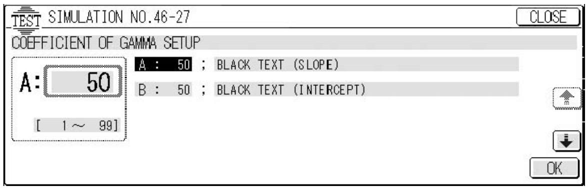
Since the black toner component image quantity differs depending on each copy mode, be careful to selection of the copy mode when checking the result of this adjustment. Check in the Text/Printed photo copy mode.

This adjustment is valid only in the Text mode, the Text/Printed photo mode, and the Text/Photograph mode.

When the adjustment value different from the default value is used, this adjustment must be performed in the following cases:

- When U2 trouble occurs.
- When the MFP PWB is replaced.
- When the EEPROM of the MFP PWB is replaced.

1) Enter the SIM 46-27 mode.



SIMULATION NO.46-27

COEFFICIENT OF GAMMA SETUP

A: 50

[1 ～ 99]

A : 50 ; BLACK TEXT (SLOPE)

B : 50 ; BLACK TEXT (INTERCEPT)

2) Enter the adjustment value with the 10-key.

BLACK TEXT (SLOPE): Black image edge section gamma (tilt) adjustment (Black text and black line reproduction adjustment)

When the adjustment value is increased, the black toner component image contrast becomes greater, and vice versa.

BLACK TEXT (INTERCEPT): Black image edge section density (overall level) adjustment (Black txt and black line reproduction adjustment)

The greater the adjustment value is, the greater the density is, and vice versa.

Normally set to the default (50).

3) Press the [OK] key.

4) Cancel the simulation, and make a copy in the Text/Printed Photo mode to check the reproduction of fine black character and line.

Use a document with black characters and lines on it for checking.

ADJ 11H Copy color balance adjustment (Single color Copy mode) (Normally unnecessary to adjust.)

This adjustment is used to adjust color balance and the density according to the user's demand.

The adjustment is made by setting the max. density level of Y, M and C in each color.

This adjustment is required in the following cases when the default was changed:

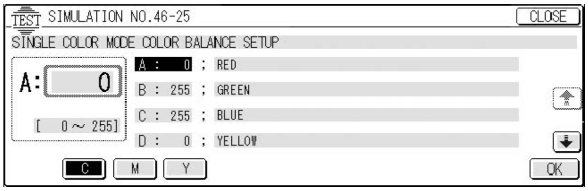
- When a consumable part (developer, photoconductor drum, transfer belt) is replaced.
- When the CCD unit is replaced.
- When the scanner (reading) section is cleaned.
- When U2 trouble occurs.
- When the MFP PWB is replaced.
- When the EEPROM of the MFP PWB is replaced.

a. Note for the adjustment

* This adjustment is not required in the normal state, but executed only when the user requests for.

b. Adjustment procedure

1) Enter the SIM 46-25 mode.



SIMULATION NO.46-25

SINGLE COLOR MODE COLOR BALANCE SETUP

A: 0

[0 ～ 255]

A : 0 ; RED

B : 255 ; GREEN

C : 255 ; BLUE

D : 0 ; YELLOW

2) Select the color to be adjusted with the scroll key.

3) Select the color with the color key.

4) Enter the adjustment value of each toner color with the 10-key. (Default)

Display		Min value	Max value	Default value		
				C	M	Y
A	RED	0	255	0	255	255
B	GREEN	0	255	255	0	255
C	BLUE	0	255	255	255	0
D	YELLOW	0	255	255	0	0
E	MAGENTA	0	255	0	255	0
F	CYAN	0	255	0	0	255

5) Cancel the simulation mode and make a copy in the single color copy mode to check.

ADJ 11I Auto color balance adjustment by user (Copy color balance auto adjustment enable setting and adjustment)

a. Outline

The user can perform the copy color balance and auto density adjustment in the user program mode.

SIIM 26-53 is used to Enable or Disable this operation.

Note: This setup is performed only when the user understands the copy color balance and the auto density adjustment and is capable of performing the operation.

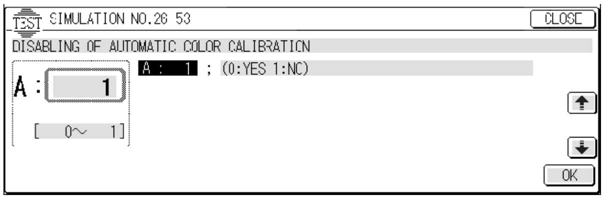
Full explanations on the operating procedure, notes, and operations must be given to the user.

This setting is required in the following cases:

- ∗ When a U2 trouble occurs.
- ∗ When the PCU main PWB is replaced.
- ∗ When the EEPROM on the PCU main PWB is replaced.

b. Setup procedure

1) Enter the SIM 26-53 mode.



SIMULATION NO.26 53

DISABLING OF AUTOMATIC COLOR CALIBRATION

A : 1 ; (0:YES 1:NO)

A : 1

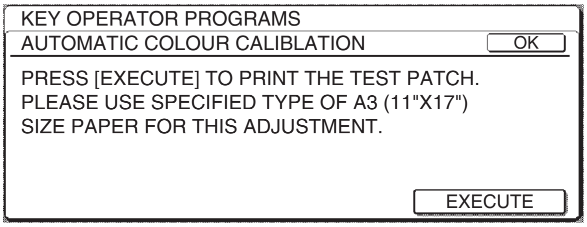
[0～ 1]

2) Select Enable/Disable with the 10-key.
   Disabling = 0: YES
   Enabling = 1: NO
3) Press the [OK] key.
   When "0: YES" (Disabling) is selected, the user auto color calibration (copy color balance, auto density adjustment) menu is not displayed in the user program mode.

(Auto color calibration by the user (Auto color balance adjustment))

Note: This adjustment is based on the service target color balance set with SIM 63-7 or 63-8. If, therefore, the above simulation is not completed normally, this adjustment will not be completed normally.

1) Enter the user program mode.
2) Enter the copy mode.
3) Press the auto color calibration key.



KEY OPERATOR PROGRAMS

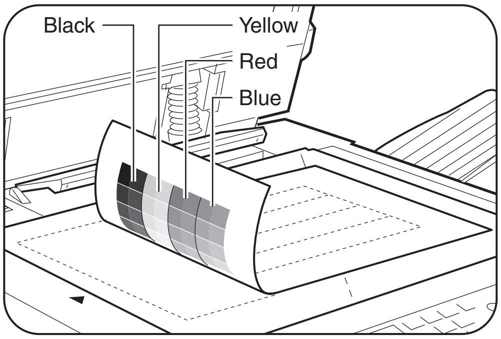
AUTOMATIC COLOUR CALIBLATION

PRESS [EXECUTE] TO PRINT THE TEST PATCH.
PLEASE USE SPECIFIED TYPE OF A3 (11"X17")
SIZE PAPER FOR THIS ADJUSTMENT.

4) Press the [EXECUTE] key.

The color patch image (adjustment pattern) is printed.

5) Set the color patch image (adjustment pattern) printed in procedure 4) on the original table so that the darker density side comes to the left side. Place 5 sheets of white paper on the color patch image (adjustment pattern) paper.



6) Press the [EXECUTE] key. The copy color balance adjustment (step 2) is automatically performed. After completion of the adjustment, the display returns to the original menu.

ADJ 11J Background process conditions setting in the color auto copy mode, image auto recognition conditions setting, text-on-dot recognition conditions setting, filter setting

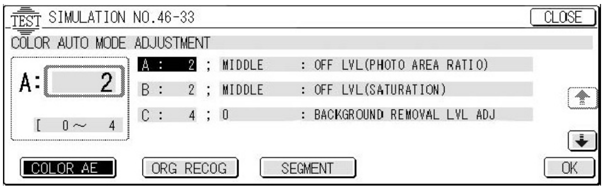
This adjustment is required in the following cases when the default was changed:

- When U2 trouble occurs.
- When the MFP PWB is replaced.
- When the EEPROM of the MFP PWB is replaced.
- When a request is made by the user.

(Foundation removal operation condition setting)

This adjustment is valid only in the color auto copy mode (Text, Text/Printed photo, Text/Photograph, Printed photo, Photograph).

1) Enter the SIM 46-33 mode.
2) Select the COLOR AE mode.



SIMULATION NO.46-33

COLOR AUTO MODE ADJUSTMENT

A : 2 ; MIDDLE : OFF LVL(PHOTO AREA RATIO)
B : 2 ; MIDDLE : OFF LVL(SATURATION)
C : 4 ; 0 : BACKGROUND REMOVAL LVL ADJ

A: 2

[0～ 4

3) Select the setting mode with the scroll key.
   A: Foundation process judgment level setting (Judged by the ratio of printed photo in the document (ratio of dotted area).)
   B: Foundation process judgment level setting (Judged by the document foundation color phase.)
   C: Foundation removal quantity setting
4) Enter the set value with the 10-key and press the OK key to set the entered value.

(Relationship between the set value and foundation removal operation)

Display	Set value (Display)		Ratio of printed photo in the document (Ratio of dot areas)			
			None or little	Little – Medium	Medium – Much	Very much
A	0	LOW	NO	NO	NO	NO
	1	RATHER LOW	YES	NO	NO	NO
	2 (Default)	MIDDLE	YES	YES	NO	NO
	3	RATHER HIGHT	YES	YES	YES	NO
	4	HIGHT	YES	YES	YES	YES

Display	Set value (Display)		Color phase in the document			
			None or Weak	Weak – Medium	Medium – Strong	Very strong
B	0	LOW	NO	NO	NO	NO
	1	RATHER LOW	YES	NO	NO	NO
	2 (Default)	MIDDLE	YES	YES	NO	NO
	3	RATHER HIGHT	YES	YES	YES	NO
	4	HIGHT	YES	YES	YES	YES

YES: Foundation removal is performed.
NO: Foundation removal is not performed.

(Foundation removal quantity setting)

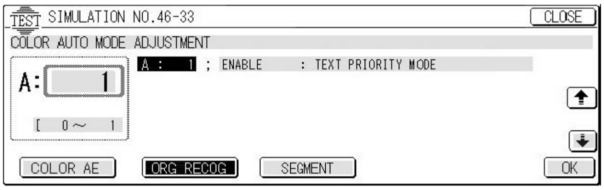
Display		Set value (Display)	Foundation removal quantity
C	−4	0	Little
	−3	1	↑
	−2	2	
	−1	3	
	0	4 (Default)	
	+1	5	
	+2	6	
	+3	7	↓
	+4	8	Much

Whether the foundation removal is performed or not is determined by the AND condition of the set items A and B.

(Image auto recognition condition setting)

Used to set whether the text area is regarded important or not in judgment of printed photo and the text/printed photo or photograph and text/photograph.

1) Select the ORG RECOG mode.



A: 1

A : 1 ; ENABLE : TEXT PRIORITY MODE

[0～ 1

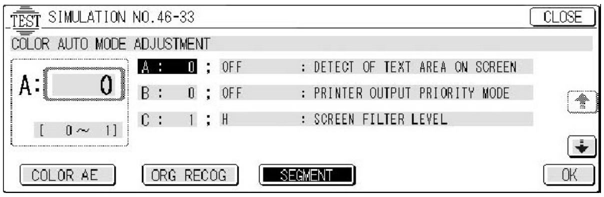
2) Enter the set value with the 10-key and press the [OK] key to set the entered value.

Display	Set value			Content
A	TEXT PRIORITY MODE	0	DISABLE	There must be considerable level of text area to judge as text/printed photo or text/photograph.
		1 (Default)	ENABLE	Only a light level of text area is enough for judging as text/printed photo or text/photograph.

(Text-on-dots recognition condition setting)

Used to set whether the text on dots is recognized as text or not.

1) Select the SEG mode.



A: 0

A : 0 ; OFF : DETECT OF TEXT AREA ON SCREEN

B : 0 ; OFF : PRINTER OUTPUT PRIORITY MODE

C : 1 ; H : SCREEN FILTER LEVEL

[0～ 1]

2) Select the set mode A with the scroll key.

3) Enter the set value with the 10-key and press the [OK] key to set the entered value.

Display	Set value		Content
A	0 (Default)	OFF	Text on dots is not recognized as text.
	1	ENABLE	Text on dots is recognized as text. (Priority is placed on the reproduction of text.)

(Setting the reproduction (text recognition level) of text on dots of a document printed by the printer)

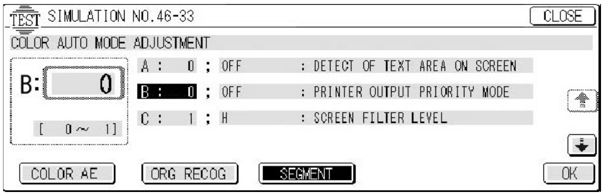
This function is effective especially when copying a document that is printed by an inkjet printer or a laser printer in the automatic color copy mode.

Some inkjet printers and laser printers express gradations with the thickness of lines. In that case, line images may be erroneously recognized as text images.

When recognized as text images, the area is printed with sharp edges and high contrast, losing gradations. In addition, dirt may appear on the print.

To cope with this problem, the text (edge) recognition level can be adjusted.

1) Select the SEG mode.



B: 0

A : 0 ; OFF : DETECT OF TEXT AREA ON SCREEN

B : 0 ; OFF : PRINTER OUTPUT PRIORITY MODE

C : 1 ; H : SCREEN FILTER LEVEL

[0～ 1]

2) Select the setting mode B with the scroll key.

3) Enter the set value with the 10-key and press the [OK] key to set the entered value.

Display	Set value		Content
B	0 (Default)	OFF	Normal mode (Normal text recognition level) Depending on the type of documents, text images may be with sharp edges and high contrast.
	1	ON	Mode for documents printed by a printer: Documents are copied in a similar picture quality. (Low text recognition level)

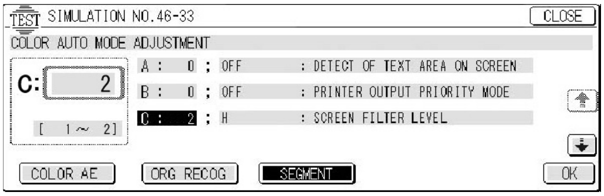
(Filter setting for high lpi (line per inch) images in the Text mode and the Printed Photo mode)

A suitable filer can be selected in the color auto (Text, Printed Photo) mode and when the document includes high lpi images.

If moire is found, adjust the set value to 2 in order to reduce sharpness and reduce moire. For low lpi images, the soft filter is compulsorily selected.

The lpi of a document is judged by the machine automatically.

1) Select the SEG mode.



C: 2

A : 0 ; OFF : DETECT OF TEXT AREA ON SCREEN

B : 0 ; OFF : PRINTER OUTPUT PRIORITY MODE

C : 2 ; H : SCREEN FILTER LEVEL

[1～ 2]

2) Select Mode C with the scroll key.

3) Enter a set value with the 10-key and press the [OK] key to set the entered value.

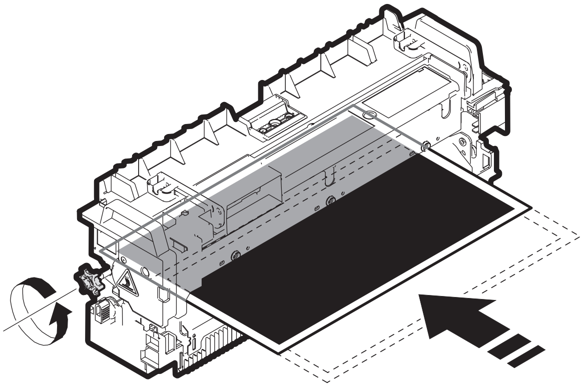
Display	Image type	SIM 46-33 SEG Mode C set value		Filter type to be selected	Descriptions
		Set value	Default setup		
C	High lpi images	1		Sharp	For high lpi images, the filter set by SIM 46-33 SEG mode C is automatically selected. (Sharp or slightly sharp filter)
		2	2	Slightly sharp	
	Low lpi images			Soft	For low lpi images, the soft filter is selected regardless of SIM 46-33 SEG mode C setup.

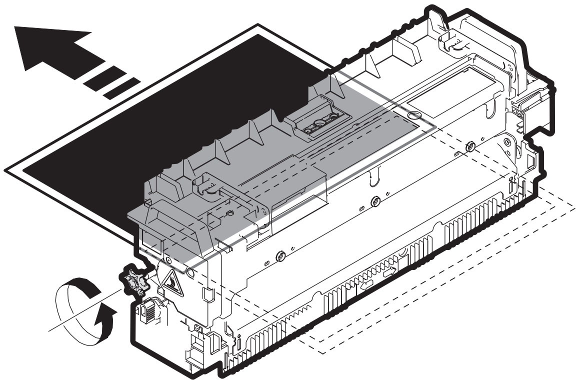
ADJ 12 Fusing pressure adjustment

This adjustment must be performed in the following cases:

- When the fusing section is disassembled.
- When a fusing trouble occurs.
- When wrinkles are generated on paper in the fusing section.

1) Select A4 (8.5 x 11) paper.
2) With the document cover open, press the start key of monochrome copy.
3) A copy of black background is made.
4) Open the left door.
5) Insert paper into the pre-transfer paper guide, and turn the fusing roller knob.

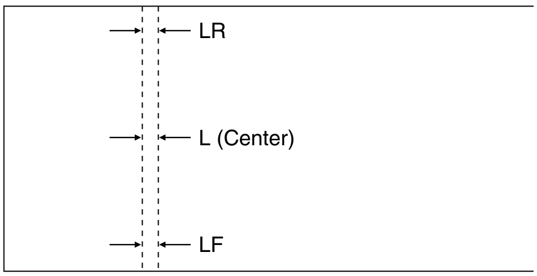




6) With the paper squeezed in the pre-transfer paper guide, wait for about 10sec.
7) Turn the fusing roller knob to remove the paper from the fusing section.
8) Measure the dimension (L) of the center section of the glittering line made by the fusing roller. Check that the dimension is in the specified range.

   Check that the pressure balance between the front and the rear frame sides is proper.

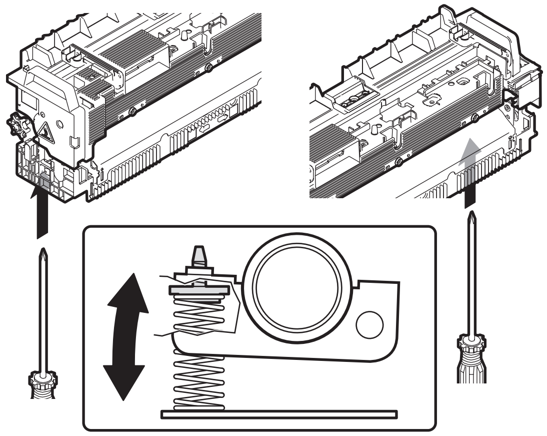
Value L = About 5.5mm



LR = LF

If the above conditions are not satisfied, perform the following procedure.

9) Turn the pressure adjustment screw on the front and the rear frame sides of the fusing unit to adjust the fusing pressure.



Repeat procedures 2) to 9) until the condition of procedure 8) is satisfied.

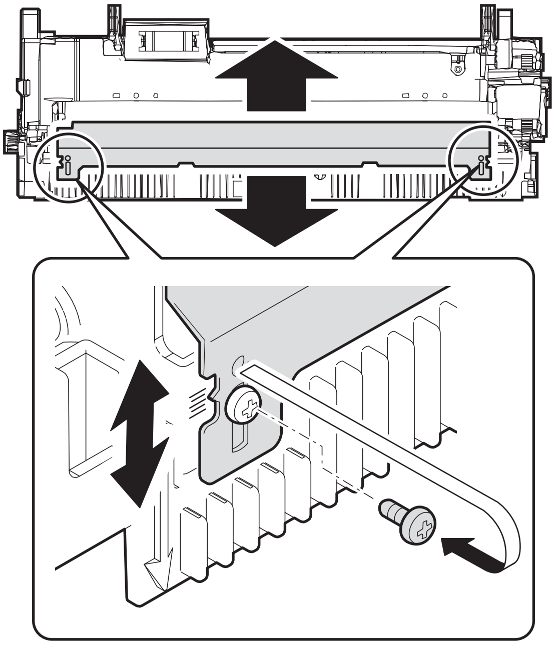
ADJ 13 Fusing paper guide position adjustment

This adjustment must be performed in the following cases:

- When the fusing section is disassembled.
- When a paper jam occurs in the fusing section.
- When wrinkles are generated on paper in the fusing section.
- When image deflection or unclear image is produced in the paper rear edge area.

The standard fixing position is at the center. However, change the position depending on the situations.

- When wrinkles are made on paper, shift the position upward.
- When image deflection or unclear image is produced in the paper rear edge area, shift the position downward.



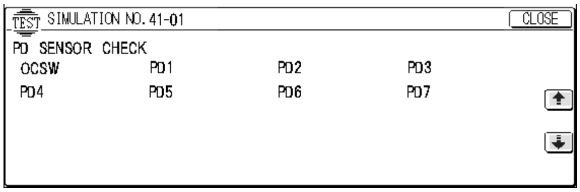
ADJ 14 Document size sensor adjustment

This adjustment must be performed in the following cases:

- When the original size sensor section is disassembled.
- When the original size sensor section is replaced.
- When a U2 trouble occurs.
- When the PCU main PWB is replaced.
- When the EEPROM of the PCU main PWB is replaced.

ADJ 14A Original size sensor detection point adjustment

1) Enter the SIM 41-1 mode.

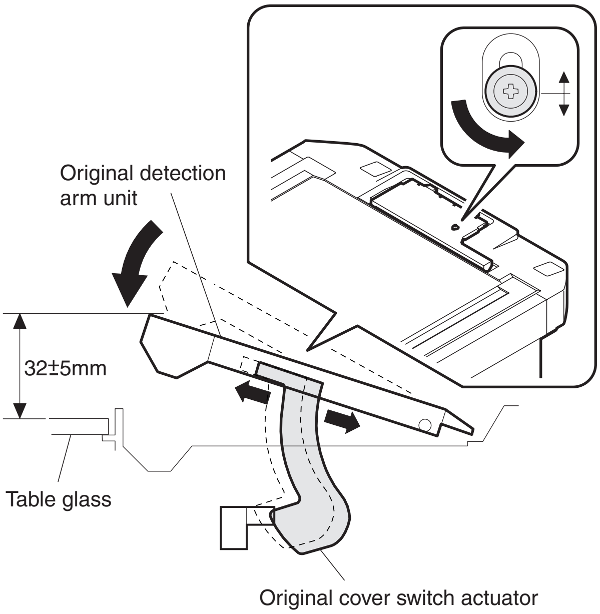


SIMULATION NO. 41-01

PD SENSOR CHECK

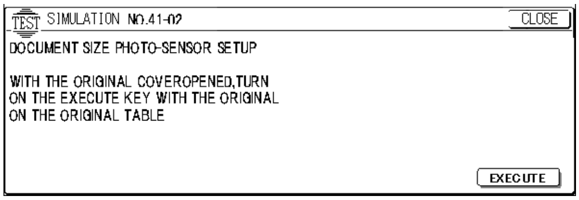
OCSW PD1 PD2 PD3
PD4 PD5 PD6 PD7

Gradually tilt the original detection arm unit. Loosen the original cover switch actuator adjustment screw so that the highlight display of OCSW is turned to the normal display when the height of the arm unit top from the table glass is 32 ± 0.5mm. Slide the actuator to adjust. (If the ON timing of the original cover switch is shifted, the original detection function may malfunction.)



ADJ 14B Original size sensor sensitivity adjustment

1) Enter the SIM 41-2 mode.



SIMULATION NO.41-02

DOCUMENT SIZE PHOTO-SENSOR SETUP

WITH THE ORIGINAL COVEROPENED,TURN
ON THE EXECUTE KEY WITH THE ORIGINAL
ON THE ORIGINAL TABLE

2) Make the sensor adjustment without an original.

With the original cover open and without an original on the original table, press the [EXECUTE] key.

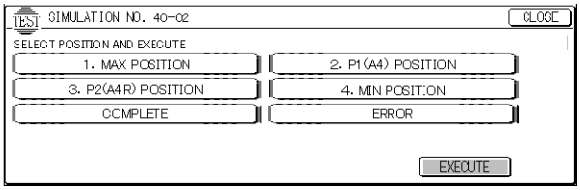
3) Place A3 (11 x 17) document on the document table and press the [EXECUTE] key.

ADJ 15 Manual paper feed tray paper size sensor adjustment

This adjustment must be performed in the following cases:

- When the manual paper feed tray section is disassembled.
- When the manual paper feed tray unit is replaced.
- When a U2 trouble occurs.
- When the PCU PWB is replaced.
- When the EEPROM of the PCU PWB is replaced.

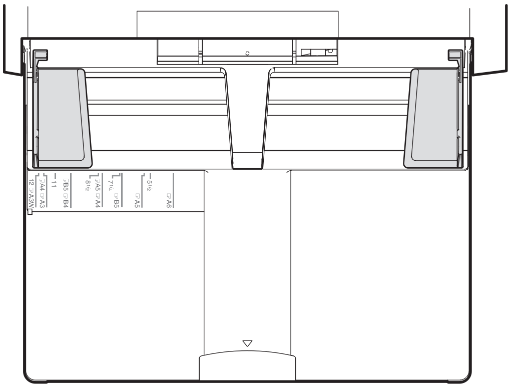
1) Enter the SIM 40-2 mode.



SIMULATION NO. 40-02

SELECT POSITION AND EXECUTE

2) Set the manual paper feed guide to the maximum position.



3) Press the [EXECUTE] key.

The [EXECUTE] key is highlighted. Then it returns to the normal display. The manual paper feed guide maximum width position detection level is recognized.

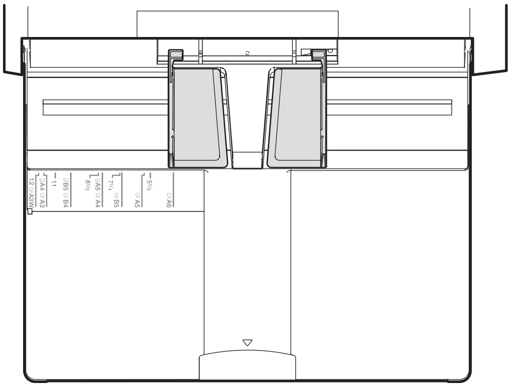
4) Set the manual paper feed guide to A4 (11 x 8.5") size width.
5) Press the [EXECUTE] key.

The [EXECUTE] key is highlighted. Then it returns to the normal display. The manual paper feed guide A4 (11 x 8.5") width position detection level is recognized.

6) Set the manual paper feed guide to A4R (11 x 8.5"R) size width.
7) Press the [EXECUTE] key.

The [EXECUTE] key is highlighted. Then it returns to the normal display. The manual paper feed guide A4R (11 x 8.5" R) width position detection level is recognized.

8) Set the manual paper feed guide to the minimum position.



9) Press the [EXECUTE] key.

The [EXECUTE] key is highlighted. Then it returns to the normal display. The manual paper feed guide minimum width position detection level is recognized.

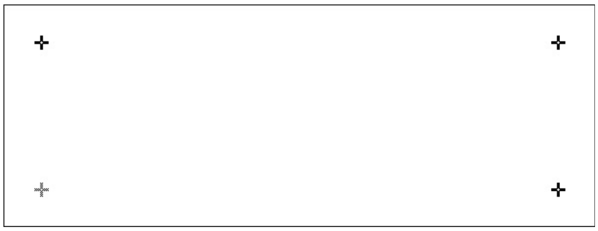
If the above procedure is not completed normally, "ERROR" is highlighted. If the above procedure is completed normally, the above data are stored and "COMPLETE" is highlighted.

ADJ 16 Touch panel coordinates setting

This adjustment must be performed in the following cases:

- When the operation panel is replaced.
- When a U2 trouble occurs.
- When the MFP PWB is replaced.
- When the EEPROM of the MFP PWB is replaced.

1) Enter the SIM 65-1 mode.



2) Touch the four cross marks on the display precisely.

When the cross marks are pressed, the buzzer sounds and they are changed from black display into gray display. When the touch panel adjustment is completed by pressing all the four marks, the display returns to the simulation sub code number entry menu.

If there is any abnormality, the first display is shown again.

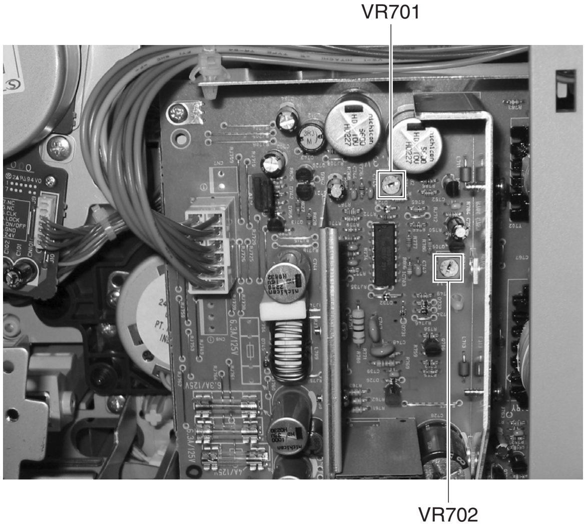
When pressing the touch panel key, check that there is no shift between the display frame and the detection position.

∗ When touching the crosses, never use a needle or a pin with a sharp point.

ADJ 17 Power voltage adjustment

This adjustment must be performed in the following cases:

- When a part in the DC power unit is replaced.



ADJ 17A 3.4 V power voltage adjustment

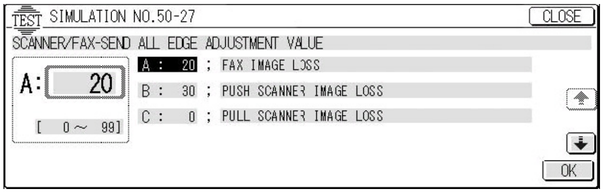
1) Put the multi-meter on the 3.4V line of the DC main PWB and GND.
2) Turn VR701 on the DC main PWB to adjust so that the voltage is 3.4V.

ADJ 17B 5.0 V power voltage adjustment

1) Put the multi-meter on the 5.0V line of the DC main PWB and GND.
2) Turn VR702 on the DC main PWB to adjust so that the voltage is 5.0V.

ADJ 18 FAX/scanner mode image loss adjustment

1) Enter the SIM 50-27 mode.



TEST SIMULATION NO.50-27

SCANNER/FAX-SEND ALL EDGE ADJUSTMENT VALUE

A: 20

[0 ~ 99]

A : 20 ; FAX IMAGE LOSS

B : 30 ; PUSH SCANNER IMAGE LOSS

C : 0 ; PULL SCANNER IMAGE LOSS

2) Select the adjustment mode with the scroll key.

Display	Content	Min. Value	Max. Value	Default
A	FAX MODE image loss	0	99	20
B	PUSH SCAN MODE image loss	0	99	30
C	PULL SCAN MODE image loss	0	99	0

3) Enter the adjustment value at the selected point with the 10-key and press the OK key to set the entered adjustment value.

When the adjustment value is changed, the image losses at the four corners are changed uniformly.

ADJ 19 RSPF scanning position automatic adjustment

ADJ 19A RSPF scanning position automatic adjustment

(1) With the RSPF open, put a black background chart on the table glass.

∗ Kind and size of black background charts

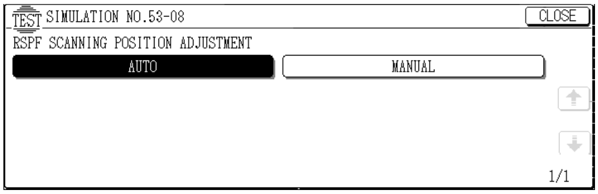
Made with a cutting sheet equivalent to 310 x 470 cutting sheet No. 791 (Black). (To prevent against erroneous detection due to disturbance light of the fluorescent lamp, etc.)

(2) Operation

1) Enter SIM 53-8, and select the adjustment [AUTO] mode.

Input procedure:
# – ∗ – C – ∗ – 53 – [START] – 8 – [START]

(Automatic adjustment display)



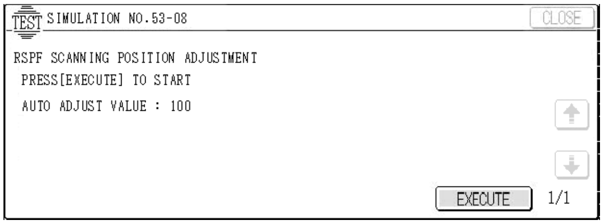
TEST SIMULATION NO.53-08

RSPF SCANNING POSITION ADJUSTMENT

AUTO

2) Select [EXECUTE], and the automatic adjustment is started.

(Execution display and end display)



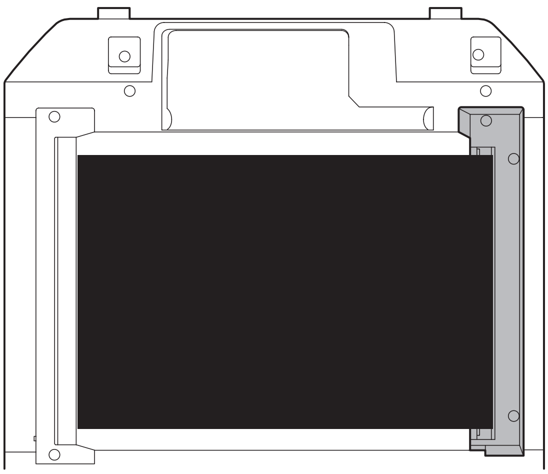
RSPF SCANNING POSITION ADJUSTMENT
PRESS[EXECUTE] TO START
AUTO ADJUST VALUE : 100

[Note]

- After completion of the RSPF scanning position adjustment, execute the RSPF document lead edge adjustment SIM50-6 (single, duplex).
- Check to insure that nothing but the black chart is on the table glass.
- Since the RSPF scanning position automatic adjustment is executed at the center in the main scanning direction, the peripheral sections must be shielded from external lights, etc.

* When acquisition of the RSPF scanning position automatic adjustment value is failed for 3 times and the operation is terminated abnormally, check the following items and try again.
  - The peripheral sections must be shielded from external lights of the fluorescent lamp.
  - The back surface of the glass holder Right must be free from dirt. (The boundary of the table glass and the glass holder Right is detected for operation.)

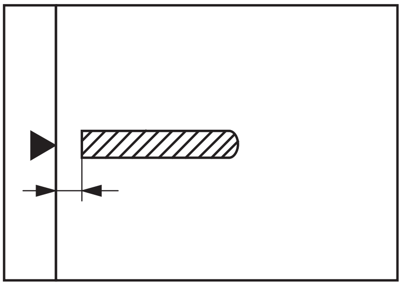
(How to place the black chart)



- Check to insure that the black chart covers the glass holder Right. (See the figure above.)
- Nothing but the black chart must be place on the OC glass surface.

ADJ 19B RSPF image lead edge adjustment

1) Set a scale on the OC table as shown in the figure below.



Note: Since the printed copy is used as a test chart for the adjustment, place the scale in parallel as precisely as possible.

2) Make a copy. Use the printed copy as an original and make a copy from the RSPF again.
3) Check the printed copy. If necessary, execute the following procedures.
4) Execute SIM 50-6.
5) Set the RSPF lead edge position set value so that the same image as that adjusted in the previous OC image lead edge position adjustment.

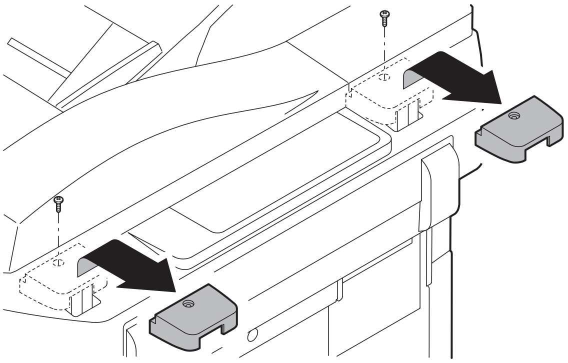
<Adjustment specifications>

Adjustment mode	SIM	Set value	Specification value	Set range
RSPF image lead edge position	SIM 50-6	1Step: 0.127mm shift	Lead edge void: 1 – 4mm Image loss: 3mm or less	1 – 99

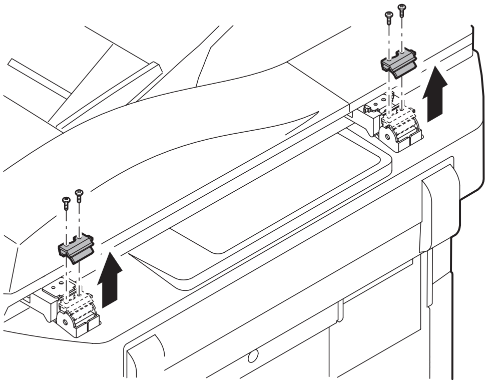
ADJ 20 RSPF lead edge skew adjustment

Note: Check to insure that the lead edge skew on the OC is within the specified allowable range.

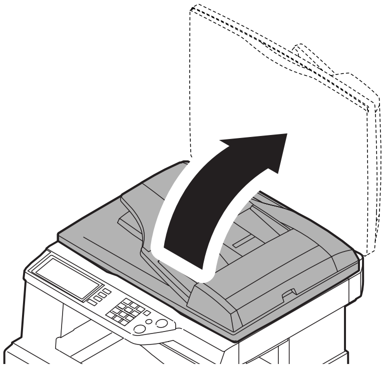
1) Remove the screw and remove the document detection cover.



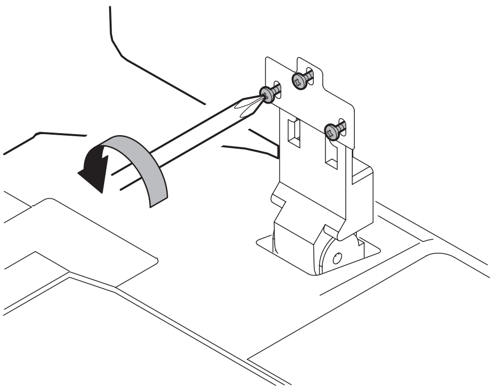
2) Remove the screw, and remove the open/close stopper.



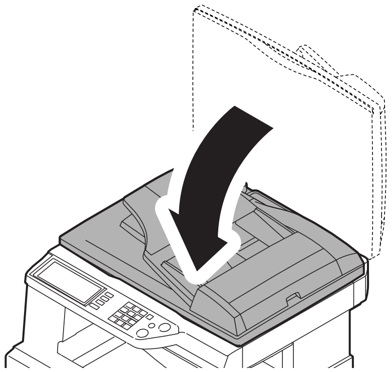
3) Open the RSPF unit until it is in vertical position.



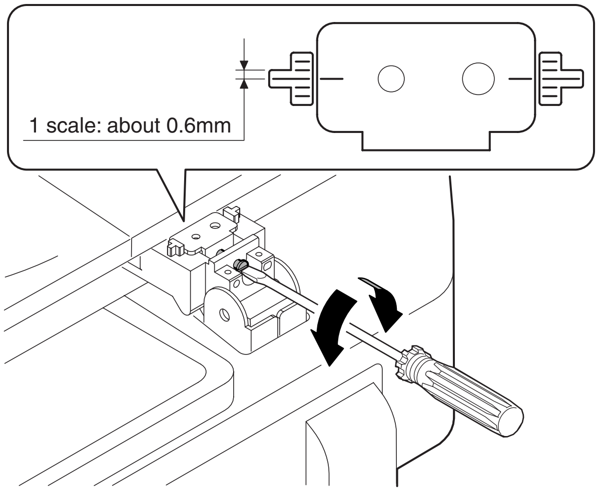
4) Loosen the screw on the hinge L side.



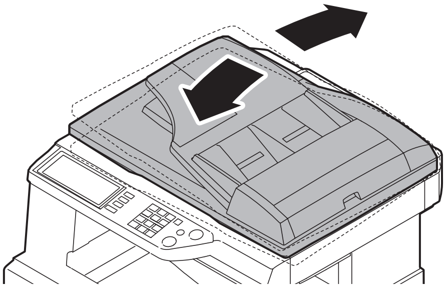
5) Close the RSPF unit.



6) Adjust the RSPF installing position with the screw on the hinge L side.



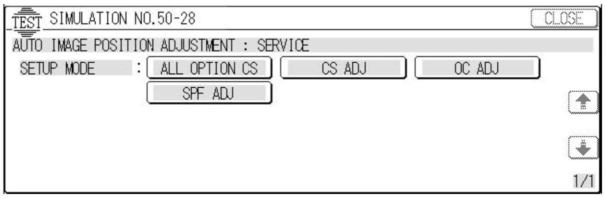
When the screw is loosened, the position is shifted to the front F side; when the screw is tightened, the position is shifted to the rear F side with the hinge R side as the reference.



ADJ 21 Collective adjustment of image position and magnification ratio

Note: When A4 paper is loaded on the main cassette and the option desk and LCC is connected, paper must be loaded in all the trays of the desk and LCC. (If A3 paper is loaded, an error occurs.)

1) Enter the SIM 50-28 mode.



SIMULATION NO.50-28

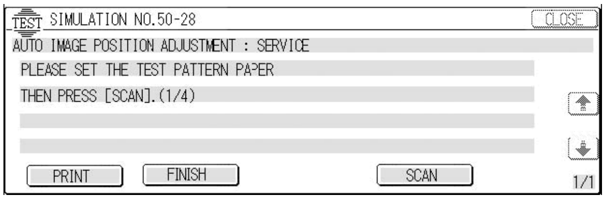
AUTO IMAGE POSITION ADJUSTMENT : SERVICE

SETUP MODE :

ALL OPTION CS:	Used to the off-center adjustment (installation adjustment) of the option tray (desk, LCC). (The main tray and the manual feed tray are adjusted in the production line and no further adjustment is needed in installation.)
CS ADJ:	Used to the off-center adjustment, the lead edge adjustment, and the rear edge adjustment.
OC ADJ:	Used to adjust the magnification ratio of the document lead edge on the scanner size in the sub scanning direction.
SPF ADJ:	Used to adjust the magnification ratio of the document lead edge on the SPF side and off-center and in the sub scanning direction.

2) Select an adjustment item according to your purpose.

3) The self print chart is outputted, and the machine is brought into the self print chart scanning standby state.



SIMULATION NO.50-28

AUTO IMAGE POSITION ADJUSTMENT : SERVICE

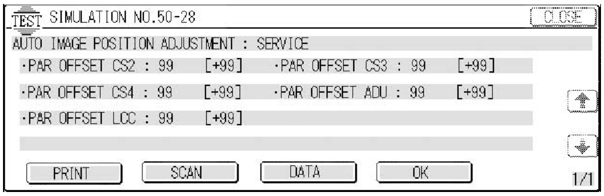
PLEASE SET THE TEST PATTERN PAPER

THEN PRESS [SCAN].(1/4)

When [PRINT] : [AUTO] is selected, each self print of pf CS1 and MFT is printed. (When [SPF] is selected, the output is made from the currently selected cassette.)

4) Select [SCAN] to scan the outputted self print chart.

5) Select [FINISH] to display the result.



SIMULATION NO.50-28

AUTO IMAGE POSITION ADJUSTMENT : SERVICE

·PAR OFFSET CS2 : 99 [+99] ·PAR OFFSET CS3 : 99 [+99]

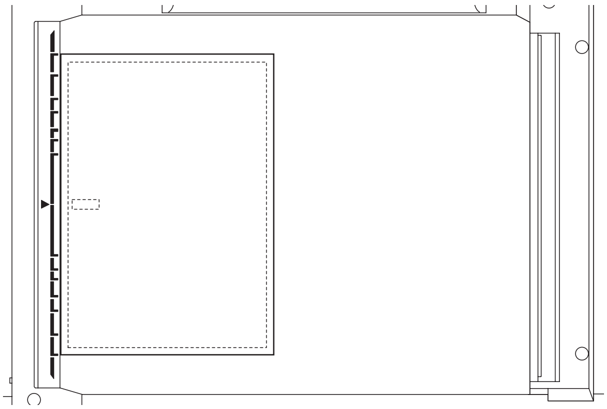
·PAR OFFSET CS4 : 99 [+99] ·PAR OFFSET ADU : 99 [+99]

·PAR OFFSET LCC : 99 [+99]

[DATA]: Scanned data are displayed.

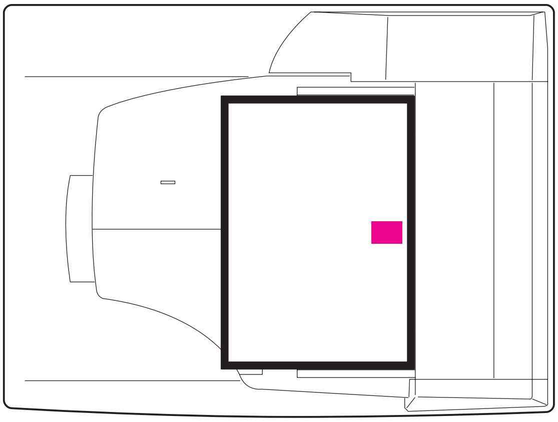
Self print chart setting

Table glass: Fit the center of the size display of the glass holder with the center of the self print chart.

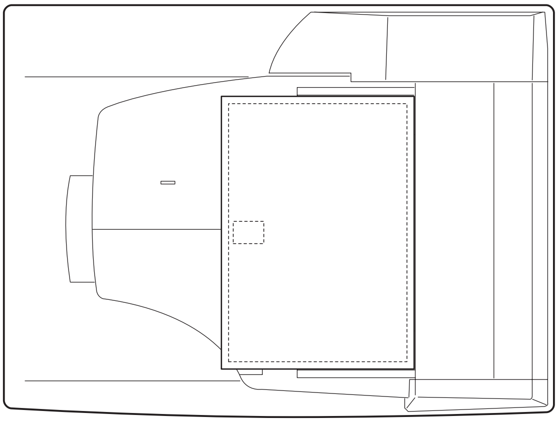


SPF:
1. Fit the self print chart with the original side guide without clearance.
2. For SPF, the front surface and the back surface must be scanned.

HEAD display (front surface): Set the self print chart on the SPF as shown below.



TAIL display (back surface): Set the self print chart on the SPF as shown below.



[9] SIMULATION

(Diagnostics, setup, adjustment value input, data display)

1. Outline and purpose

The simulation has the following functions to grasp the machine operating status, identify the trouble position and causes in an earlier stage, and make various setups and adjustments speedily for improving the serviceability of the machine.

1) Various adjustments
2) Setup of specifications and functions
3) Canceling troubles
4) Operation check
5) Various counters check, setup, and clear
6) Machine operating status (operation history) data check, clear
7) Transfer of various data (adjustments, setup, operations, counters)

The operating procedures and the displays differ depending on the form of the operation panel of the machine.

2. Code-type simulation

A. Operating procedures and operations

∗ Entering the simulation mode

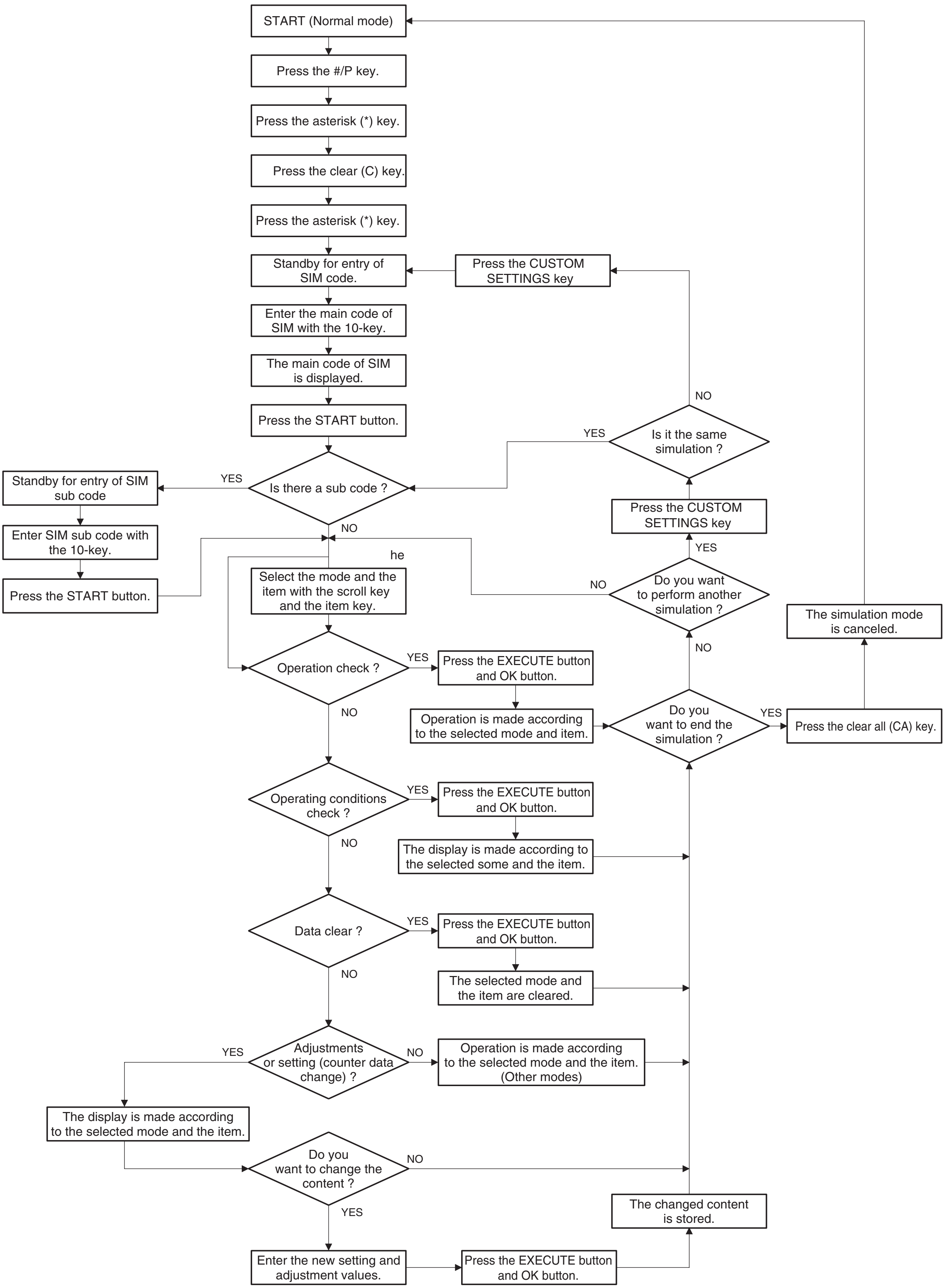
1) #/P key (program) ON → Asterisk (*) key ON → CLEAR (C) key ON → Asterisk (*) key ON → Ready for input of a main code of simulation
2) Entering a main code with the 10-key → START (Black copy) key ON
3) Entering a sub code with the 10-key → START (Black copy) key ON
4) Select an item with the scroll key and the item key.
5) The machine enters the mode corresponding to the selected item.

   Press START key or EXECUTE key to start the simulation operation.

   To cancel the current simulation mode or to change the main code and the sub code, press the user setup key.

∗ Canceling the simulation mode to return to the normal mode

1) Press CLEAR ALL (CA) key.


START (Normal mode)
Press the #/P key.
Press the asterisk (*) key.
Press the clear (C) key.
Press the asterisk (*) key.
Standby for entry of SIM code.
Press the CUSTOM SETTINGS key
Enter the main code of SIM with the 10-key.
The main code of SIM is displayed.
Press the START button.
NO
YES
Is it the same simulation ?
Standby for entry of SIM sub code
YES
Is there a sub code ?
Press the CUSTOM SETTINGS key
Enter SIM sub code with the 10-key.
NO
YES
he
Select the mode and the item with the scroll key and the item key.
NO
Do you want to perform another simulation ?
Press the START button.
The simulation mode is canceled.
NO
Operation check ?
YES
Press the EXECUTE button and OK button.
NO
Operation is made according to the selected mode and item.
Do you want to end the simulation ?
YES
Press the clear all (CA) key.
Operating conditions check ?
YES
Press the EXECUTE button and OK button.
NO
The display is made according to the selected some and the item.
Data clear ?
YES
Press the EXECUTE button and OK button.
NO
The selected mode and the item are cleared.
YES
Adjustments or setting (counter data change) ?
NO
Operation is made according to the selected mode and the item. (Other modes)
The display is made according to the selected mode and the item.
Do you want to change the content ?
NO
YES
The changed content is stored.
Enter the new setting and adjustment values.
Press the EXECUTE button and OK button.

B. Simulation list

(1) Main/ Sub

Code		Function (Purpose)	Purpose	Section		Item	
Main	Sub						
1	1	Used to check the operations of the scanner unit and its control circuit.	Operation test/check	Scanner (reading)		Operation	
	2	Used to check the sensors and detectors in the scanner section and the related circuits.	Operation test/check	Scanner (reading)		Operation	
	5	Used to check the scanner (scanning) unit and its control circuit.	Operation test/check	Scanner (reading)		Operation	
2	2	Used to check the operations of the sensors and detectors in the document feeder unit and their related circuits.	Operation test/check	Automatic document feeder		Operation	
	3	Used to check the operations of the motors, solenoids, and the PS clutch in the document feeder unit.	Operation test/check	Automatic document feeder		Operation	
3	2	Used to check the operations of the sensors and detectors in the finisher and the related circuits.	Operation test/check	Finisher		Operation	
	3	Used to check the loads in the finisher and the control circuit.	Operation test/check	Finisher		Operation	
	10	Used to adjust the sections in the finisher.	Operation test/check	Finisher		Operation	
4	2	Used to check the operations of the desk/large capacity tray sensors and detectors and the related circuits.	Operation test/check	Paper feed		Operation	
	3	Used to check the operations of the desk/large capacity tray loads and the control circuit.	Operation test/check	Paper feed		Operation	
	5	Used to check the operations of the clutch TRC and the monitor.	Operation test/check	Paper feed		Operation	
5	1	Used to check the operations of the display lamp (LED)/LCD on the operation panel and the control circuits.	Operation test/check	Operation (Display, procedure)		Operation	
	2	Used to check the operations of the heater lamp and its control circuit.	Operation test/check	Fusing		Operation	
	3	Used to check the operations of the scanner lamp and its control circuit.	Operation test/check	Scanner (reading)		Operation	
	4	Used to check the operations of the discharge lamp and its control circuit.	Operation test/check	Process (Photoconductor, developing, transfer, cleaning)	Others	Operation	
6	1	Used to check the operations of the loads (clutches and solenoids) in the paper transport system, transfer, and fusing, and the control circuit.	Operation test/check	Paper transport (paper exit, switchback, transport), transfer, fusing		Operation	
	2	Used to check the operations of the fan motors and the control circuits.	Operation test/check	Others		Operation	
7	1	Used to set the aging conditions.	Setting/Operation test/check			Operation	
	6	Used to set the cycle of intermittent aging.	Setting/Operation test/check			Operation	
	8	Used to set Yes/No of warm-up time display.	Setting/Operation test/check			Operation	
	9	Used to check the image quality and operations of each color.	Operation test/check	Others		Picture quality	
8	1	Used to check and adjust the operations of the developing bias voltage of each color and the control circuit.	Adjustment/Operation test/check	Process (Photoconductor, developing, transfer, cleaning)			
	2	Used to check and adjust the operation of each print mode main charger grid voltage and the control circuit.	Adjustment/Operation test/check	Process (Photoconductor, developing, transfer, cleaning)			
	6	Used to check and adjust the operation of the transfer charger current and the control circuit.	Adjustment/Operation test/check	Process (Photoconductor, developing, transfer, cleaning)		Transfer	
9	2	Used to check the operation of the sensors and detectors in the inverter/duplex section and the control circuit.	Operation test/check	Inverter/Duplex		Operation	

Code		Function (Purpose)	Purpose	Section		Item	
Main	Sub						
9	3	Used to check the operations of the loads (motor, clutch, solenoid) in the inverter/duplex section and the control circuits.	Operation test/check	Inverter/Duplex		Operation	
14	0	Used to cancel self diag troubles H3, H4, and H5. Inhibition of the color copy mode operation is canceled.	Clear/cancel (Trouble etc.)			Trouble	Error
15	0	Self diag U6-09 (large capacity paper feed tray) trouble cancel	Clear/cancel (Trouble etc.)	Paper feed		Trouble	
16	0	Used to cancel self diag trouble U2.	Clear/cancel (Trouble etc.)			Trouble	Error
17	0	Used to cancel self diag troubles PF (copy inhibition command from the host computer).	Clear/cancel (Trouble etc.)	Communication (RIC/ MODEM)		Trouble	Error
21	1	Used to set the maintenance cycle.	Setting			Specifications	Counter
22	1	Used to check the print count value in each section and each operation mode. (Used to check the maintenance timing.)	Adjustment/Setting/ Operation data output, check (display, print)			Counter	
	2	Used to check the total misfeed count and the total trouble count. (If the misfeed count is considerably great, it may be judged as necessary to repair. By dividing this count by the total count, the misfeed rate can be obtained.)	Adjustment/Setting/ Operation data output, check (display, print)			Trouble	
	3	Used to check misfeed positions and the misfeed count of each position. (If the misfeed count is considerably great, it may be judged as necessary to repair.) (Machine section only)	Adjustment/Setting/ Operation data output, check (display, print)			Trouble	Misfeed
	4	Used to check the total trouble (self diag) history.	Adjustment/Setting/ Operation data output, check (display, print)			Trouble	
	5	Used to check the ROM version of each unit (section).	Others			Software	
	6	Used to print the setting and adjustment data list.	Adjustment/Setting/ Operation data output, check (display, print)			Data	Setting/ Adjustment data
	7	Used to display the key operator code. (Used when the customer forgets the key operator code.)	User data output/ Check (Display/Print)			Data	User data
	8	Used to check the number of scan (read) of the staple and the document feed unit.	Adjustment/Setting/ Operation data output, check (display, print)			Counter	
	9	Used to check the number of uses (print quantity) of each paper feed section.	Adjustment/Setting/ Operation data output, check (display, print)	Paper feed		Counter	
	10	Used to check the system configuration (option, internal hardware).	Adjustment/Setting/ Operation data output, check (display, print)			Specifications	Option
	11	Used to check the number of use of FAX. (When the FAX is installed)	Adjustment/Setting/ Operation data output, check (display, print)	FAX		Counter	
	12	Used to check the misfeed positions and the number (history) of misfeed at each position. (If the misfeed count is considerably great, it may be judged as necessary to repair.)	Adjustment/Setting/ Operation data output, check (display, print)	Automatic document feeder		Trouble	Misfeed
	13	Used to check the process cartridge counter. (If the count number is considerably great, it may be judged as necessary for repair.)	Adjustment/Setting/ Operation data output, check (display, print)	Process section		Counter	
	19	Used to check the counters related to the network scanner.	Adjustment/Setting/ Operation data output, check (display, print)	Network scanner		Counter	
24	1	Used to clear the misfeed counter, the misfeed history, the trouble counter, and the trouble history. (After completion of maintenance, the counters are cleared.)	Data clear	Memory		Counter	
	2	Used to clear the data of the number of uses (print quantity) of each paper feed section.	Data clear	Paper feed		Counter	Paper feed unit
	3	Used to clear the number of scan (read) of the staple and the document feed unit.	Data clear	Transport/Finisher		Counter	

Code		Function (Purpose)	Purpose	Section		Item	
Main	Sub						
24	4	Used to reset the maintenance counter.	Data clear			Counter	Maintenance
	6	Used to clear the copy counters.	Data clear			Counter	
	7	Used to clear the OPC drum (membrane decrease) correction counter. (This simulation is performed with the OPC drum is replaced.)	Data clear	Process (Photoconductor, developing, transfer, cleaning)	Photoconductor	Counter	Photoconductor
	8	Used to clear the waste toner counter in the transfer section.	Data clear	Process (Photoconductor, developing, transfer, cleaning)	Transfer	Counter	
	9	Used to clear the printer mode counter and the self-print mode print counter. (After completion of maintenance, the counters are cleared.)	Data clear	Printer		Counter	Printer
	10	Used to clear the FAX counter. (When the FAX is installed)	Data clear	FAX		Counter	
	15	Used to clear the network scanner counter.	Data clear	Scanner section		Counter	
25	1	Used to check the operation of the process section (excluding the image process section) and the toner remaining quantity sensor. (The toner remaining quantity sensor output can be monitored.)	Operation test/check	Process (Photoconductor, developing, transfer, cleaning)		Operation	
26	2	1. Used to set the paper size of the large capacity tray. (When the paper size is changed, the software setup must be changed accordingly with this simulation.) 2. Used to detect 8.5 " x 13" (INCH Series) paper or documents and to set the display mode. (All paper feed modes) 3. Used to set the display form of the paper kind in the manual paper feed mode.	Setting	Paper feed		Specifications	
	3	Used to set the auditor specification mode. Setting must be made according to the use conditions of the auditor.	Setting	Auditor		Specifications	
	5	Used to set the count mode of the total counter and the maintenance counter.	Setting			Specifications	Counter
	6	Used to set the destination specifications (paper, fixed copy magnification ratios, image (process) correction, machine operation in case of an error, etc.).	Setting			Specifications	Destination
	10	Used to set the trial mode of the network scanner.	Setting	Scanner		Specifications	
	18	Used to set YES/NO of toner save operation. (This simulation is Enable only for Japan and UK versions. It depends on SIM 26-6 (Destination) setting. For the other destinations, the same setting can be made by the user program P22. (Effective only in the monochrome copy mode)	Setting			Specifications	Operation mode (Common)
	35	Used to set whether the trouble history display by SIM 22-4 is displayed as one trouble or as the accumulated number of continuous troubles when two or more troubles of same kind occur continuously.	Setting			Specifications	
	38	Used to set "Continue/Stop" of printing when the maintenance timing (replacement timing of each consumable part) is reached.	Setting			Specifications	
	41	Used to set Enable/Disable of AMS operation in the center-binding mode.	Setting			Specifications	
	49	Used to set the copy speed mode.	Setting			Specifications	Operation mode

Code		Function (Purpose)	Purpose	Section		Item	
Main	Sub						
26	50	Used to set Black-White reverse, group rounding, and scanner send time display.	Setting			Specifications	Operation mode
	52	Used to set YES/NO of count up of non-copy paper (cover or insertion paper).	Setting			Specifications	Operation mode
	53	Used by the user to set Enable/ Disable auto color calibration (auto adjustment of color balance and density)	Setting			Specifications	Operation mode
	54	Used to set enable/disable of auto color calibration for the printer.	Setting			Specifications	Operation mode
	57	Used to set the model name for use as the status information.	Setting			Specifications	
	65	Used to set the finisher alarm mode.	Setting			Specifications	
	69	Used to set the operation specifications in case of toner cartridge life near end.	Setting			Specifications	
	72	Used to set disable/enable of the high image quality mode in BW copy.	Setting			Specifications	
27	1	Used to set the specifications for operations in case of communication trouble between the host computer and MODEM (machine side). (When communication trouble occurs between the host computer MODEM and the machine, the self diag display (U7-00) is printed and setting for inhibition of print or not is made.)	Operation test/check	Communication (RIC/ MODEM)		Specifications	Operation mode (Common)
	5	Used to enter the machine tag No. (This function allows to check the tag No. of the machine with the host computer.)	Setting	Communication (RIC/ MODEM)		Data	User data
30	1	Used to check the operation of sensors and detectors in the paper feed, paper transport, paper exit sections and the related circuits.	Operation test/check			Operation	
	2	Used to check the operation of sensors and detectors in the paper feed section and the related circuits. (The operation of the paper feed sensors and detectors can be monitored with the LCD display.)	Operation test/check	Paper feed		Operation	
33	1	Used to check the operation of the card reader and the sensors and the related circuits. (The card reader sensor operation can be monitored with the LCD display.)	Operation test/check	Others		Operation	
40	1	Used to check the operation of the manual feed tray paper size detector and the related circuit. (The operation of the manual feed tray paper size detector can be monitored with the LCD display.)	Operation test/check	Paper feed		Operation	
	2	Used to adjust the manual feed tray paper width detector detection level.	Adjustment	Paper feed		Operation	
	7	Used to enter the adjustment value of the manual paper feed tray paper width detector detection level. (Setting)	Setting	Paper feed		Specifications	
41	1	Used to check the operation of the document size sensor and the related circuit. (The operation of the document size sensor can be monitored with the LCD display.) Sensor ON/OFF check	Operation test/check	Others		Operation	
	2	Used to adjust the document size sensor detection level.	Adjustment	Others		Operation	
	3	Used to check the operation of the document size sensor and the related circuit. (The document size sensor output level can be monitored with the LCD display.) Current sensor (A/D) value	Operation test/check	Others		Operation	

Code		Function (Purpose)	Purpose	Section		Item	
Main	Sub						
43	1	Used to set the fusing temperature in each operation mode.	Setting	Fixing (Fusing)		Operation	
	4	Used to set the fusing temperature for each paper.	Setting	Fixing (Fusing)		Operation	
44	1	Used to set enable/disable of correction operations in the image forming (process) section.	Setting	Process (Photoconductor, developing, transfer, cleaning)		Operation	
	2	Black image density sensor adjustment	Adjustment	Process (Transfer)		Operation	
	4	Image forming section correction, image density sensor adjustment conditions setup	Setting	Process (Photoconductor, development, transfer)		Picture quality	
	6	Used to forcibly execute the image forming section correction (high density process correction) (process correction).	Operation test/check	Process (Photoconductor, developing, transfer, cleaning)		Operation	
	9	Used to check the data related to the image forming section correction (the corrected main charger grid voltage in each print mode, the developing bias voltage, etc.). (Used to check that correction is performed normally or not.)	Adjustment/Setting/ Operation data output, check (display, print)	Process (Photoconductor, developing, transfer, cleaning)		Data	Operation data (Machine conditions)
	12	Used to check the sampling toner image patch density data in the image forming section correction (high-density correction) (process correction). This simulation allows to check if the correction operation is performed normally.)	Adjustment/Setting/ Operation data output, check (display, print)	Process (Photoconductor, developing, transfer, cleaning)		Data	Operation data (Machine conditions)
	13	Color image density sensor adjustment (Adjustment by the adjustment jig)	Adjustment	Process (Transfer)			
	14	Used to monitor the output level of the fusing temperature sensor, the machine temperature sensor, and the humidity sensor.	Adjustment/Setting/ Operation data output, check (display, print)	Others			
	21	Used to store color balance adjustment data. (Half tone image correction initial setting) (After execution of color balance adjustment with SIM 46-21, this simulation must be executed.)	Setting			Picture quality	
	22	Used to check each color toner patch image density UITU in half tone image forming section correction (process correction). (This simulation allows to check if correction operation is performed normally.)	Adjustment/Setting/ Operation data output, check (display, print)	Process (Photoconductor, developing, transfer, cleaning)		Data	Operation data (Machine conditions)
	24	Used to check the half tone correction result. (This simulation allows to check if correction is executed properly or not.)	Adjustment/Setting/ Operation data output, check (display, print)	Process (Photoconductor, developing, transfer, cleaning)		Data	Operation data (Machine conditions)
	25	Setting the half tone correction conditions.	Adjustment/Setting/ Operation data output, check (display, print)	Process (Photoconductor, developing, transfer, cleaning)		Data	Operation data (Machine conditions)
	26	Used to execute half tone correction compulsorily.	Adjustment	Process (Photoconductor, developing, transfer, cleaning)		Picture quality	
	27	Used to clear the half tone correction data and set to the default level.	Data clear	Process (Photoconductor, developing, transfer, cleaning)		Data	
	36	Color image density sensor and black image density sensor adjustment (simple adjustment)	Adjustment	Process (Transfer)			
46	1	Used to adjust the copy density of each color copy mode in the low-density area. The copy densities of all colors in the low-density areas are changed.	Adjustment	Process (Photoconductor, developing, transfer, cleaning)		Picture quality	Density

Code		Function (Purpose)	Purpose	Section		Item	
Main	Sub						
46	2	Used to adjust the copy density of the low-density area in each monochrome copy mode. The copy density of the low-density area is changed.	Adjustment	Process (Photoconductor, developing, transfer, cleaning)		Picture quality	Density
	4	Used to adjust the image density (color mode) in the network scan mode.	Adjustment	Scanner (reading)		Picture quality	Density
	5	Used to adjust the image density (monochrome mode) in the network scan mode.	Adjustment	Scanner (reading)		Picture quality	Density
	6	1) Used to set the CCD black level offset level. 2) Used to set the CCD white level gain.	Adjustment	Scanner (reading)		Picture quality	
	8	Image color balance adjustment in the network scan mode	Adjustment	Scanner (reading)		Picture quality	
	9	Used to set the exposure adjustment value in each document feeder unit mode.	Setting	Automatic document feeder		Picture quality	
	10	Used to adjust the copy color balance (color) (copy document mode) (gamma/density adjustment for each color)	Adjustment	Image process (ICU)		Picture quality	Color balance
	11	Used to adjust the copy color balance (color) (text mode/map mode) (gamma/density adjustment for each color)	Adjustment	Image process (ICU)		Picture quality	Color balance
	12	Used to adjust the copy color balance (color) (text/printed photo mode/Photograph mode) (gamma/density adjustment for each color)	Adjustment	Image process (ICU)		Picture quality	Color balance
	13	Used to adjust the copy color balance (color) (photograph mode) (gamma/density adjustment for each color)	Adjustment	Image process (ICU)		Picture quality	Color balance
	14	Used to adjust the copy color balance (color) (text/photograph mode) (gamma/density adjustment for each color)	Adjustment	Image process (ICU)		Picture quality	Color balance
	15	Engine color balance manual correction	Adjustment	Image process (ICU)		Picture quality	Density
	16	Used to adjust the gamma and density. (Monochrome mode) (The adjustment check pattern is printed.)	Adjustment	Image process (ICU)		Picture quality	Density
	19	1. Used to set half tone (gamma) selection (destination setting) in the monochrome auto copy mode. 2. Used to set the automatic exposure operation mode (Monochrome copy mode, FAX mode, monochrome scanner mode).	Adjustment	Scanner (reading)		Picture quality	
	20	Used to adjust copy color balance (All color copy mode gamma/density adjustment) (All color copy mode color balance/gamma/density are changed.) Same as SIM 46-21, however, printing is not performed.	Adjustment	Image process (ICU)		Picture quality	Color balance
	21	Used to adjust copy color balance (All color copy mode gamma/density adjustment) (All color copy mode color balance/gamma/density are changed.)	Adjustment	Image process (ICU)		Picture quality	Color balance
	23	Used to set Enable/Disable of half-tone high-density correction.	Setting			Picture quality	Color balance
	24	Used to adjust the copy color balance automatically. (All color copy mode gamma/density adjustment)	Adjustment			Picture quality	Color balance
	25	Used to adjust copy color balance (Single color mode)	Adjustment	Image process (ICU)		Picture quality	Color balance
	26	Used to set the copy color balance adjustment to the default. (Single color copy mode)	Adjustment	Image process (ICU)		Picture quality	Color balance

Code		Function (Purpose)	Purpose	Section		Item	
Main	Sub						
46	27	Used to adjust the gamma/density in the black edge section of the copy mode image. (Black text and black line reproduction adjustment)	Adjustment	Image process (ICU)		Picture quality	Color balance
	40	Collective adjustment of FAX mode (all modes) document scan density (When the FAX is installed)	Adjustment	ICU PWB / FAX		Picture quality	
	41	Used to adjust the FAX mode (normal mode) document scan density (when the FAX is installed).	Adjustment	ICU PWB / FAX		Picture quality	
	42	Used to adjust the FAX mode (fine text mode) document scan density (when the FAX is installed).	Adjustment	ICU PWB / FAX		Picture quality	
	43	Used to adjust the FAX mode (super fine mode) document scan density (when the FAX is installed).	Adjustment	ICU PWB / FAX		Picture quality	
	44	Used to adjust the FAX mode (ultra-fine mode) document scan density (when the FAX is installed).	Adjustment	ICU PWB / FAX		Picture quality	
48	1	Used to adjust the copy magnification ratio (main scanning,/ sub scanning direction, document feeder unit front surface, document feeder unit back surface).	Adjustment			Picture quality	Size/ magnification ratio
	6	Used to adjust each motor RPM.	Adjustment			Operation	
49	1	Used for firmware version up (Machine/FAX).	Version up	Firmware (Machine/FAX)		Operation	
	2	Used to set the data communication speed in version up of the machine firmware.	Version up	Firmware		Operation	
	10	Used for firmware version up (Desk unit).	Version up	Firmware (Desk unit)		Operation	
50	1	Used to adjust the copy image position and the void area (image loss) on print paper in the copy mode. (The similar adjustment can be made also by SIM 50-2 (Simple method).)	Adjustment			Picture quality	Image position
	2	Used to adjust the copy image position and the void area (image loss) on print paper in the copy mode. (Simple method) (The same content of SIM 50-1. However this simulation is easier to perform.)	Adjustment			Picture quality	Image position
	5	Used to adjust the image position and print area in the sub scanning direction. (Print engine section)	Adjustment	ICU/Printer		Picture quality	
	6	Used to adjust the document lead edge and image loss quantity of the document feeder unit.	Adjustment	Automatic document feeder		Picture quality	
	10	Used to adjust the print image center position. (Adjustment is performed in each paper feed position separately.)	Adjustment	Image process (ICU)		Picture quality	Image position
	12	Used to adjust the print image center position. (The adjustment is performed in each document mode separately.)	Adjustment	Image process (ICU)		Picture quality	Image position
	20	Used to adjust the image registration. (Manual adjustment)	Adjustment			Picture quality	Image position
	22	Used to adjust the image registration. (Automatic adjustment)	Adjustment			Picture quality	Image position
	24	Used to display the adjustment data of automatic registration.	Adjustment			Picture quality	Image position
	27	Used to adjust image loss in the FAX/scanner mode.	Adjustment	FAX/Scanner		Picture quality	
	28	Used to adjust automatic void (service installation adjustment).	Adjustment			Picture quality	Image position

Code		Function (Purpose)	Purpose	Section		Item	
Main	Sub						
51	1	Used to adjust the transfer voltage ON timing.	Adjustment	Process (Photoconductor, developing, transfer, cleaning)	Transfer	Operation	
	2	Used to adjust the contact pressure of paper on the resist roller of each section (each paper feed and duplex feed of the copier). (This adjustment is required when the print image position variations are considerably great or when paper jams occur frequently.)	Adjustment	Paper transport (Paper exit, switchback, transport)		Operation	
52	1	Used to adjust the duplex print mode stacking capacity (Used to adjust the stop position of the duplex unit paper tray width alignment plate. The home position of the width alignment plate is changed by software.)	Adjustment	Duplex		Operation	
53	8	Used to adjust the document feeder unit document scanning position.	Adjustment	Automatic document feeder		Operation	
60	1	Used to check the operation of ICU PWB image DRAM read/write.	Operation test/check	ICU (Memory)		Operation	
	2	Used to set the onboard SRAM.	Setting	SDRAM			
61	4	Used to adjust the scanner (writing) unit (LED array unit) skew.	Adjustment	Scanner (writing)		Operation	
63	1	Used to check the result of shading correction. (The shading correction data are displayed.)	Adjustment/Setting/ Operation data output, check (display, print)	Scanner (Exposure)		Operation	
	3	Used to adjust the CCD color balance (gamma).	Adjustment	Scanner (reading)		Picture quality	Color balance
	5	Used to set the CCD color balance (gamma) default.	Setting	Scanner (reading)		Picture quality	Color balance
	6	Used to check the color balance (gamma) check patch.	Adjustment/Operation data output check (display, print)	Image process (ICU)		Picture quality	Color balance
	7	Used to set the target color balance (gamma) for auto color balance adjustment. The standard color balance (gamma) or an optional color balance (gamma) is set as the service target.	Setting	Image process (ICU)		Picture quality	Color balance
	8	Used to set the service target of the automatic color balance adjustment (SIM 46-24) and the automatic color balance adjustment target of the key operator program to the same balance as the factory target of the automatic color balance adjustment (SIM 46-24).	Setting	Scanner (reading)		Picture quality	Color balance
	9	Used to adjust the CCD gamma (CCD calibration) (copy document mode).	Setting	Scanner (reading)		Picture quality	Color balance
	10	Used to set the copy document mode color balance (gamma) default.	Setting	Scanner (Image scanning)		Picture quality	Color balance
	11	Used to set the factory color balance in the automatic color balance adjustment (SIM 46-24).	Setting	Scanner (reading)		Picture quality	
64	1	Used to adjust the operations of the printer section (self-print operation/ color). (The print pattern, paper feed mode, print mode, print quantity, and density can be changed optionally.)	Operation test/check	Printer		Operation	
	2	Used to print the color patch image (adjustment pattern). The above color patch image (adjustment pattern) is outputted according to the currently adjusted color balance (gamma). Use SIM 63-7 to read the color patch image (adjustment pattern), which can be used as the service target of the automatic color balance (gamma) adjustment.	Adjustment/Setting/ Operation data output, check (display, print)	Printer		Operation	

Code		Function (Purpose)	Purpose	Section		Item	
Main	Sub						
64	3	Used to check the operations of the printer section (self-print operation/ BW). (The print pattern, the paper feed mode, the print mode, the print quantity, and the density can be set optionally.)	Operation test/check	Printer		Operation	
65	1	Used to adjust the touch panel (LCD display section) detection position.	Adjustment	Operation (Display, procedure)			
	2	Used to check the result of the touch panel (LCD display) detection position adjustment. (The coordinates are displayed.)	Adjustment/Setting/ Operation data output, check (display, print)	Operation (Display, procedure)			
66	01	Used to change/set the soft SW setting (FAX-related items). (When the FAX is installed.)	Setting	FAX			
	02	Used to initialize the soft SW setting (FAX-related items) according to the destination. (When the FAX is installed.)	Setting	FAX		Data	Initializing
	03	Used to check the memory on the Modem controller. (When the FAX is installed.)	Operation test/check	FAX		Operation	
	04	Used to select a signal and send it to the line and speaker (at the max. level). (When the FAX is installed.)	Operation test/check	FAX		Operation	
	05	Used to select a signal and send it to the line and the speaker. (Level: Soft SW setting) (When the FAX is installed.)	Operation test/check	FAX		Operation	
	06	Used to print the check list of the contents when confidential registration is made. (When the FAX is installed.)	Data output/check	FAX		Data	Confidential pass code
	07	Used to print all the images in the memory. (When the FAX is installed.)	Data output/check	FAX		Data	Image data
	08	Used to select a voice message and send it to the line and the speaker (at the max. level). (When the FAX is installed.)	Operation test/check	FAX		Operation	
	09	Used to select a signal and send it to the line and the speaker. (Level: soft SW setting). (When the FAX is installed.)	Operation test/check	FAX		Operation	
	10	All the images in the memory can be deleted. (When the FAX is installed.)	Data clear	FAX		Data	Image data
	11	Used to select a pattern and send it to the line and the speaker at 300bps (at the max. level). (When the FAX is installed.)	Operation test/check	FAX		Operation	
	12	Used to select a pattern and send it to the line and the speaker at 300bps. (Level: soft SW setting) (When the FAX is installed.)	Operation test/check	FAX		Operation	
	13	Used to register a dial number for test used in SIM 66-14/15/16. (When the FAX is installed.)	Setting	FAX		Data	Registration
	14	Used to adjust and check the make time of dial pulse (10pps). (When the FAX is installed.)	Adjustment	FAX		Operation	
	15	Used to adjust and check the make time of the dial pulse (20pps). (When the FAX is installed.)	Adjustment	FAX		Operation	
	16	Used to adjust and check the send level of DTFM signal. (When the FAX is installed.)	Adjustment	FAX		Operation	
	17	Used to select the DTFM signal (1 – 9, 0, *, #) to send it to the line and the speaker (at the max. level). (When the FAX is installed.)	Operation test/check	FAX		Operation	
	18	Used to select the DTFM signal (1 – 9, 0, *, #) to send it to the line and the speaker (Level: soft SW setting). (When the FAX is installed.)	Operation test/check	FAX		Operation	

Code		Function (Purpose)	Purpose	Section		Item	
Main	Sub						
66	19	Used to write the ICU PWB SRAM contents (various set values and user data) into the Flash ROM (AR-MM9). (When the FAX is installed.)	Backup	FAX		Data	
	20	Used to write the Flash ROM (AR-MM9) contents (SRAM contents written with SIM 66-19) into the ICU PWB SRAM. (When the FAX is installed.)	Backup	FAX		Data	
	21	Used to print various registration information, communication, file management, system error, and protocol information. (When the FAX is installed.)	Check	FAX		Data	
	22	Used to set the sound volume of the handset. (When the FAX is installed.)	Setting	FAX		Operation	
	23	Used to download the FAX program. (When the FAX is installed.)	Setting	FAX		Operation	
	24	Used to clear the data in the FAST memory. (When the FAX is installed.)	Data clear	FAX		Data	Initializing
	29	Used to clear the data related to the address book (one-touch registration, program registration/ expansion, interface memory box registration, each table contents). (When the FAX is installed.)	Data clear	FAX		Data	Initializing
	30	Used to check the status change of the TEL/LIU sensor. (When the FAX is installed.)	Operation test/check	FAX		Operation	
	31	Used to set ON/OFF of each port for output to the TEL/LIU. (When the FAX is installed.)	Setting	FAX		Operation	
	32	Used to check (compare) the received data (fixed data) from the line to make judgment of error or normal. (When the FAX is installed.)	Operation test/check	FAX		Operation	
	33	Used to detect signals (BUSY TONE/CNG/CED/FNET) from the line. (When the FAX is installed.)	Operation test/check	FAX		Operation	
	34	Used to display the time required for sending the test image data. (When the FAX is installed.)	Operation test/check	FAX		Operation	
	35	Used to rewrite the Modem program. (When the FAX is installed.)	Setting	FAX		Data	Writing
	36	Used to check send/receive (data/ command line) from the Modem controller to the MFP controller. (When the FAX is installed)	Operation test/check	FAX		Operation	
	39	Used to set the destination of the FAX. (When the FAX is installed.)	Setting	FAX		Specifications	

C. Details

1

1 -1

Purpose	Operation test/check
Function (Purpose)	Used to check the operations of the scanner unit and its control circuit.
Section	Scanner (reading)
Item	Operation
Operation/ Procedure	1. Select the copy (scanning) magnification ratio with the zoom key. The magnification ratio can be increased or decreased with the [ZOOM] key by the increment of 1%. The selected magnification ratio is displayed on the magnification ratio display. 2. Press the [EXECUTE] key.

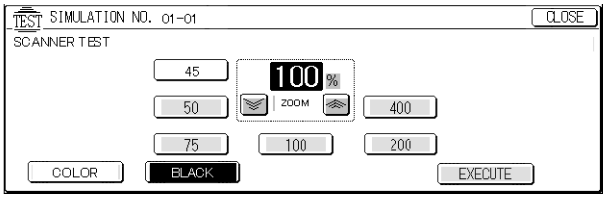
Scanning is performed at the magnification ratio set in procedure 1 is executed.

During scanning, the [EXECUTE] key is highlighted. If the [EXECUTE] key is pressed under this state, the operation is interrupted.

After completion of scanning, the [EXECUTE] key returns to the normal display.

To resume scanning, start with procedure 2. To change the magnification ratio, start with procedure 1.

Scanning is performed at the max. scanning length (432 mm). If, however, the magnification ratio is set to a value greater than 100% in procedure 1, the scanning length is changed accordingly.


TEST SIMULATION NO. 01-01

SCANNER TEST

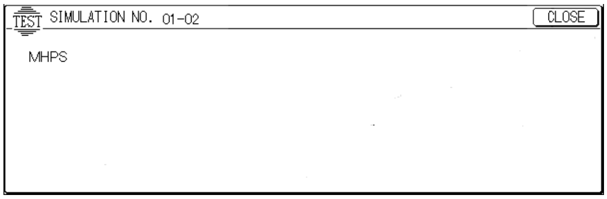
100 %

1 -2

Purpose	Operation test/check
Function (Purpose)	Used to check the sensors and detectors in the scanner section and the related circuits.
Section	Scanner (reading)
Item	Operation
Operation/ Procedure	The operations of sensors and detectors in the scanner section are displayed.

The active sensors and detectors are highlighted.

- The light source unit is at the home position. a MHPS is highlighted.
- The light source unit is not at the home position. a MHPS is displayed normally.

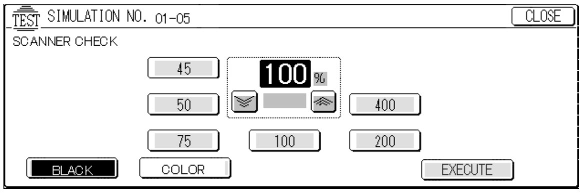

TEST SIMULATION NO. 01-02

MHPS

1 -5

Purpose	Operation test/check
Function (Purpose)	Used to check the scanner (scanning) unit and its control circuit.
Section	Scanner (reading)
Item	Operation
Operation/ Procedure	1. Select the copy (scanning) magnification ratio with the key (touch panel). The magnification ratio can be increased or decreased with the [ZOOM] key by the increment of 1%. The selected magnification ratio is displayed on the magnification ratio display. 2. Select the scan mode (Color / B/W). 3. Press the [EXECUTE] key. Scanning is repeated under the conditions set in procedures 1 and 2. During scanning, the [EXECUTE] key is highlighted.

Scanning is repeatedly performed until the [EXECUTE] key or the interruption key is pressed.


TEST SIMULATION NO. 01-05

SCANNER CHECK

100 %

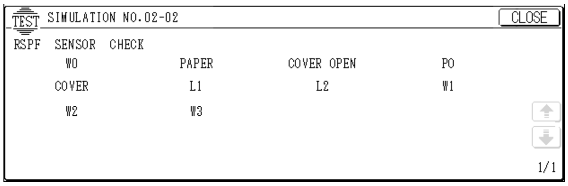
2

2 -2

Purpose	Operation test/check
Function (Purpose)	Used to check the operations of the sensors and detectors in the document feeder unit and their related circuits.
Section	Automatic document feeder
Item	Operation
Operation/ Procedure	The operating status of the sensors and detectors in the document feeder unit is displayed. The active sensors and detectors are highlighted.

[When the RSPF is installed]

W0	Document set sensor
PAPER	Document transport sensor
COVER OPEN	Unit (OC cover) open/close sensor
PO	Paper exit sensor
COVER	Paper feed cover open/close sensor
L1	Document length sensor 1
L2	Document length sensor 2
W1	Document width sensor (small)
W2	Document width sensor (middle)
W3	Document width sensor (large)


TEST SIMULATION NO.02-02

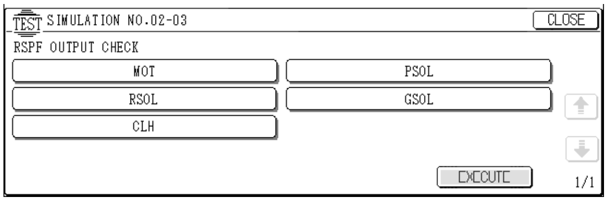
RSPF SENSOR CHECK

2 -3

Purpose	Operation test/check
Function (Purpose)	Used to check the operations of the motors, solenoids, and the PS clutch in the document feeder unit.
Section	Automatic document feeder
Item	Operation
Operation/ Procedure	1. The names of the loads that can be operated are displayed. Select the load to be checked with the key, and the selected load is highlighted. 2. Press the [EXECUTE] key.

[When RSPF is installed]

MOT	Motor
PSOL	Paper feed solenoid
RSOL	Paper reverse solenoid
GSOL	Paper exit fate solenoid
CLH	PS clutch



3

3 -2

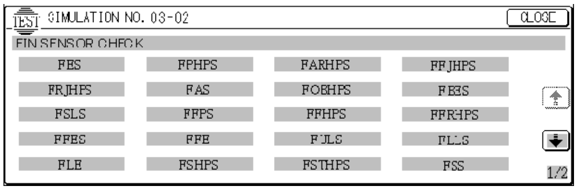
Purpose	Operation test/check
Function (Purpose)	Used to check the operations of the sensors and detectors in the finisher and the related circuits.
Section	Finisher
Item	Operation
Operation/ Procedure	The operating status of the sensors and detectors of the finisher is displayed. The active sensor/detector display is highlighted.

(Sensors to be detected)

FES	Inlet sensor
FPHPS	Paddle HP sensor
FARHPS	Bundle roller HP sensor
FFJHPS	Alignment HP sensor (F)
FRJHPS	Alignment HP sensor (R)
FAS	Alignment tray sensor
FOBHPS	Paper exit belt HP sensor
FBES	Tray paper sensor
FSLS	Paper surface sensor
FFPS	Binding position sensor
FFHPS	Binding HP sensor
FFRHPS	Binding roller HP sensor
FFES	Binding paper sensor
FFE	Binding clock sensor
FULS	Lift upper limit sensor
FLLS	Lift lower limit sensor
FLE	Lift clock sensor
FSHPS	Slide HP sensor
FSTHPS	Stapler HP sensor
FSS	Staple sensor
FSUC	Stapler connection sensor
FMLS	Lift middle sensor
FSPS	Self prime sensor
FFDS	Front door sensor
FCS	Upper cover sensor
FFDSW	Front door switch
FJS	Joint switch
FSSS	Stapler safety switch
FPTS	Punch timing sensor
FPSS1	Punch side resist sensor 1
FPSS2	Punch side resist sensor 2
FPSS3	Punch side resist sensor 3
FPSS4	Punch side resist sensor 4
FPDS	Punch dust sensor
FPUC	Punch connection
FPSHPS	Punch side resist home position
FPE	Punch motor encoder

[When the sorter is installed]

SBPED	Sensor in bin
SLDHP	Lead cam HP sensor
SGBHP	Guide bar HP sensor
SBUHP	Bin unit HP sensor
SPPD	Paper exit sensor
SJSW	Joint switch
SPSW2	Push switch 2
SPSW3	Push switch 3
SDIPSW1	DIP switch (SW1)
SDIPSW2	DIP switch (SW2)
SDIPSW3	DIP switch (SW3)
SDIPSW4	DIP switch (SW4)
SDIPSW5	DIP switch (SW5)
SDIPSW6	DIP switch (SW6)



3 -3

Purpose	Operation test/check
Function (Purpose)	Used to check the loads in the finisher and the control circuit.
Section	Finisher
Item	Operation
Operation/ Procedure	1. The names of the loads that can be checked are displayed. Select a load to be checked with the key. 2. Press the [EXECUTE] key. The selected load operates.

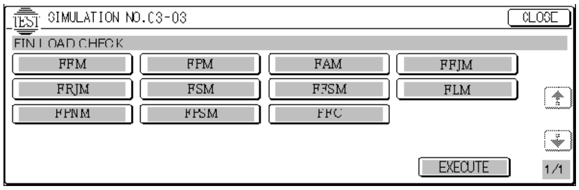
During the load operation, the [EXECUTE] key and the load key are highlighted. Under this state, pressing the [EXECUTE] key interrupts the load operation.

(Loads to be selected)

FFM	Transport motor	FFSM	Stapler motor
FPM	Paddle motor	FLM	Shift motor
FAM	Bundle exit motor	FPNM	Punch motor
FFJM	Alignment motor (F)	FPSM	Puncher side resist motor
FRJM	Alignment motor (R)	FFC	Folding clutch
FSM	Slide motor		

(When the sorter is installed)

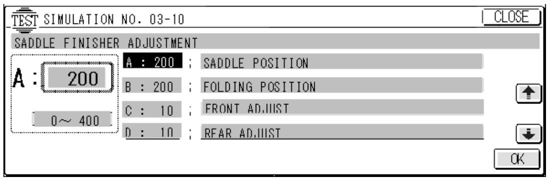
SBSM	Bin unit shift motor
SPFM	Transport motor
SGBM	Guide bar drive motor


TEST
SIMULATION NO.C3-03
CLOSE
FIN LOAD CHECK
FFM
FPM
FAM
FFJM
FRJM
FSM
FFSM
FLM
FPNM
FPSM
FFC
EXECUTE
1/1

3 -10

Purpose	Operation test/check
Function (Purpose)	Used to adjust the sections in the finisher.
Section	Finisher
Item	Operation
Operation/ Procedure	1. Select the adjustment item with the scroll key. 2. Enter the adjustment value with the 1o-key and press the OK key to set the value.

	Item	Set range	Initial value
A	Saddle binding position adjustment	0 – 400	200
B	Saddle folding position adjustment	0 – 400	200
C	Front alignment position adjustment	0 – 20	10
D	Rear alignment position adjustment	0 – 20	10
E	Staple rear one-point binding position adjustment	0 – 200	100
F	Staple front one-point binding position adjustment	0 – 200	100
G	Staple two-point binding center adjustment	0 – 200	100
H	Staple two-point binding pitch adjustment	0 – 100	50
I	Punch center adjustment	47 – 53	50
J	Punch hole position adjustment	0 – 100	50


TEST
SIMULATION NO. 03-10
CLOSE
SADDLE FINISHER ADJUSTMENT
A : 200
0～ 400
A : 200 ; SADDLE POSITION
B : 200 ; FOLDING POSITION
C : 10 ; FRONT ADJUST
D : 10 ; REAR ADJUST
OK

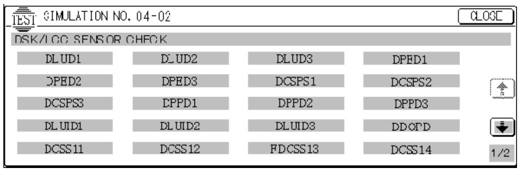
4

4 -2

Purpose	Operation test/check
Function (Purpose)	Used to check the operations of the desk/large capacity tray sensors and detectors and the related circuits.
Section	Paper feed
Item	Operation
Operation/ Procedure	The operating conditions of the sensors and detectors in the paper feed section are displayed. The active sensors and detectors are highlighted.

(Sensors to be detected)

DLUD1	Desk 1cs upper limit detection
DLUD2	Desk 2cs upper limit detection
DLUD3	Desk 3cs upper limit detection
DPED1	Desk 1cs paper empty detector
DPED2	Desk 2cs paper empty detection
DPED3	Desk 3cs paper empty detection
DCSPS1	Desk 1cs remaining quantity detection
DCSPS2	Desk 2cs remaining quantity detection
DCSPS3	Desk 3cs remaining quantity detection
DPPD1	Desk paper transport detection 1
DPPD2	Desk paper transport detection 2
DPPD3	Desk paper transport detection 3
DLUID1	Desk 1cs lift unit installation detection
DLUID2	Desk 2cs lift unit installation detection
DLUID3	Desk 3cs lift unit installation detection
DDOPD	Desk door open detection
DCSS11	Desk 1cs paper size detection 1
DCSS12	Desk 1cs paper size detection 2
DCSS13	Desk 1cs paper size detection 3
DCSS14	Desk 1cs paper size detection 4
DCSS21	Desk 2cs paper size detection 1
DCSS22	Desk 2cs paper size detection 2
DCSS23	Desk 2cs paper size detection 3
DCSS24	Desk 2cs paper size detection 4
DCSS31	Desk 3cs paper size detection 1
DCSS32	Desk 3cs paper size detection 2
DCSS33	Desk 3cs paper size detection 3
DCSS34	Desk 3cs paper size detection 4
LTD	Transport sensor
LUD	LCC upper limit detection
LLD	LCC lower limit detection
LPED	LCC paper empty detection
LTOD	LCC main unit connection detection
LCD	LCC tray insertion detection
LOSW	LCC upper open/close detection SW
LRE	LCC lift motor encoder
24V	LCC24V detection
LLSW	LCC upper limit SW


TEST
SIMULATION NO. 04-02
CLOSE
DSK/LCC SENSOR CHECK
DLUD1
DLUD2
DLUD3
DPED1
DPED2
DPED3
DCSPS1
DCSPS2
DCSPS3
DPPD1
DPPD2
DPPD3
DLUID1
DLUID2
DLUID3
DDOPD
DCSS11
DCSS12
FDCSS13
DCSS14
1/2

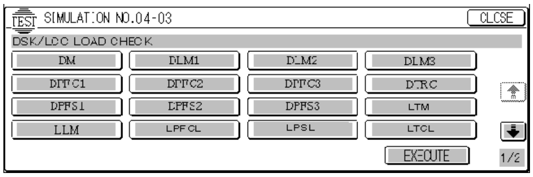
4 -3

Purpose	Operation test/check
Function (Purpose)	Used to check the operations of the desk/large capacity tray loads and the control circuit.
Section	Paper feed
Item	Operation
Operation/ Procedure	1. The names of the loads that can be checked are displayed. Select a load to be checked with the key, and the selected load is highlighted. 2. Press the [EXECUTE] key. The load selected in procedure 1 starts the operation.

During the operation of the load, the [EXECUTE] key is highlighted. If the [EXECUTE] key is pressed while it is highlighted, the operation is stopped.

(Loads to be selected)

DM	Desk transport motor
DLM1	Desk 1cs lift-up motor
DLM2	Desk 2cs lift-up motor
DLM3	Desk 3cs lift-up motor
DPFC1	Desk 1cs paper feed clutch
DPFC2	Desk 2cs paper feed clutch
DPFC3	Desk 3cs paper feed clutch
DTRC	Desk transport clutch
DPFS1	Desk 1cs paper feed solenoid
DPFS2	Desk 2cs paper feed solenoid
DPFS3	Desk 3cs paper feed solenoid
LTM	LCC transport motor
LLM	LCC lift motor operation
LPFCL	LCC paper feed clutch
LPSL	LCC paper feed solenoid
LTCL	LCC transport clutch
LTLSL	LCC tray lock solenoid

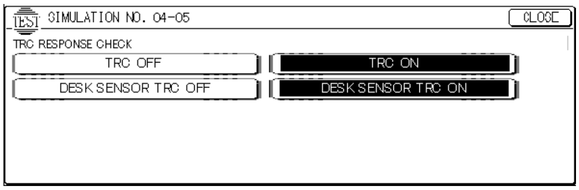

SIMULATION NO.04-03
CLOSE
DSK/LCC LOAD CHECK
DM
DLM1
DLM2
DLM3
DPFC1
DPFC2
DPFC3
DTRC
DPFS1
DPFS2
DPFS3
LTM
LLM
LPFCL
LPSL
LTCL
EXECUTE
1/2

4 -5

Purpose	Operation test/check
Function (Purpose)	Used to check the operations of the clutch TRC and the monitor.
Section	Paper feed
Item	Operation
Operation/ Procedure	1. Press the [TRC ON] key. (The load operates.) 2. Press the [TRC OFF] key to terminate checking.

When the [TRC ON] key or the [TRC OFF] key is pressed, the TRC clutch is turned ON or OFF.

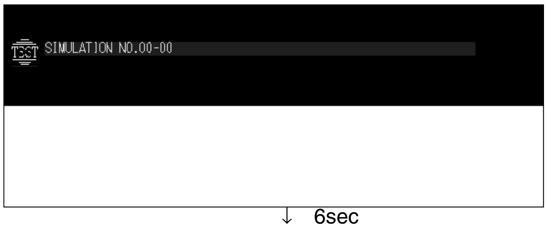
If the response of monitoring TRC ON/OFF is made, DESK SENSOR TRC ON/OFF is displayed.


SIMULATION NO. 04-05
CLOSE
TRC RESPONSE CHECK
TRC OFF
TRC ON
DESK SENSOR TRC OFF
DESK SENSOR TRC ON

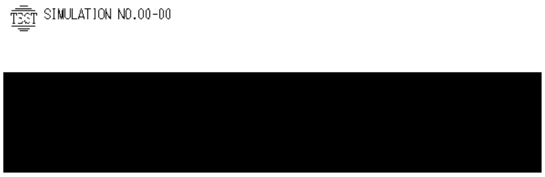
5

5 -1

Purpose	Operation test/check
Function (Purpose)	Used to check the operations of the display lamp (LED)/LCD on the operation panel and the control circuits.
Section	Operation (Display, procedure)
Item	Operation
Operation/ Procedure	The LCD shows the following message. (The contrast changes in the sequence of Current level → MAX → MIN → Current level → MAX → MIN in every 2sec.) During that period, each LED is lighted for 12sec.


SIMULATION NO.00-00

↓ 6sec

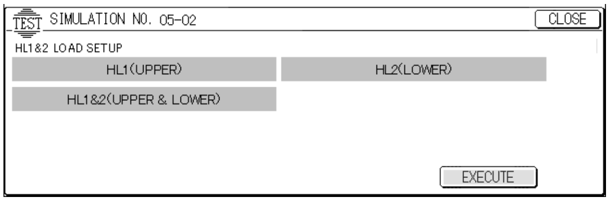

SIMULATION NO.00-00

5 -2

Purpose	Operation test/check
Function (Purpose)	Used to check the operations of the heater lamp and its control circuit.
Section	Fusing
Item	Operation
Operation/ Procedure	1. Select the lamp to be checked with the key. 2. Press the [EXECUTE] key.

The selected heater lamp repeats ON/OFF in the frequency of 500msec for 10sec. (The [EXECUTE] key is highlighted.) Then the [EXECUTE] key returns to the normal display. When the [EXECUTE] key is pressed during ON/OFF operation of the heater lamp, the heater lamp is turned OFF and the [EXECUTE] key returns to the normal display.

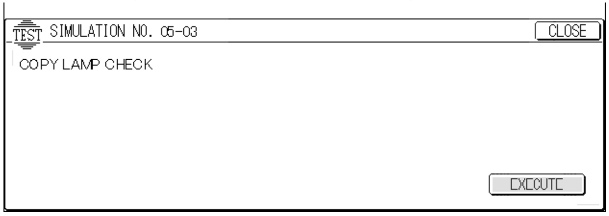
HL1 (UPPER)	Upper heater lamp
HL2 (LOWER)	Lower heater lamp
HL1&2 (UPPER & LOWER)	Upper/lower fusing heater lamp


SIMULATION NO. 05-02
CLOSE
HL1&2 LOAD SETUP
HL1(UPPER)
HL2(LOWER)
HL1&2(UPPER & LOWER)
EXECUTE

5 -3

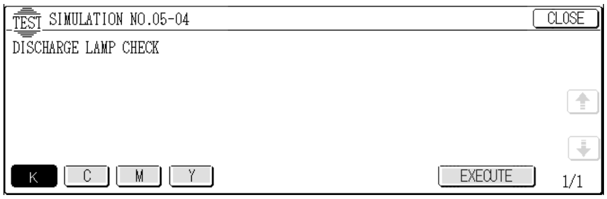
Purpose	Operation test/check
Function (Purpose)	Used to check the operations of the scanner lamp and its control circuit.
Section	Scanner (reading)
Item	Operation
Operation/ Procedure	When the [EXECUTE] key is pressed, the scanner lamp is lighted for 10 sec. While the scanner lamp is lighted, the [EXECUTE] key is highlighted. If the [EXECUTE] key is pressed under this state, the lamp is turned OFF.

After 10 sec, the scanner lamp is turned OFF. At that time, the [EXECUTE] key returns to the normal display.


SIMULATION NO. 05-03
CLOSE
COPY LAMP CHECK
EXECUTE

5 -4

Purpose	Operation test/check
Function (Purpose)	Used to check the operations of the discharge lamp and its control circuit.
Section	Process (Photoconductor, developing, transfer, cleaning) Others
Item	Operation
Operation/ Procedure	1. Select the target discharge lamp with the [K], [C], [M], and [Y] keys. (K: Black, C: Cyan, M: Magenta, Y: Yellow) 2. When the [EXECUTE] key is pressed, the key is highlighted and the selected discharge lamp is lighted for 30sec. If the [EXECUTE] key is pressed while the lamp is lighted, the lamp is turned OFF.


TEST SIMULATION NO.05-04
CLOSE
DISCHARGE LAMP CHECK
K
C
M
Y
EXECUTE
1/1

6

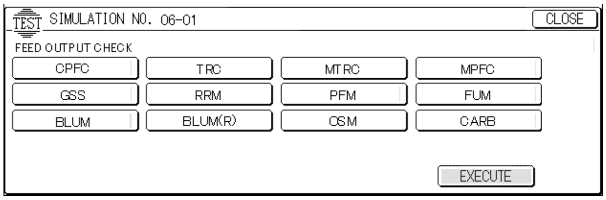
6 -1

Purpose	Operation test/check
Function (Purpose)	Used to check the operations of the loads (clutches and solenoids) in the paper transport system, transfer, and fusing, and the control circuit.
Section	Paper transport (paper exit, switchback, transport), transfer, fusing
Item	Operation
Operation/ Procedure	1. The names of the loads that can be checked are displayed. Select the load to be checked with the key, and the selected load is highlighted. 2. Press the [EXECUTE] key. The selected load starts the operation. During the operation of the load, the [EXECUTE] key is highlighted. If the [EXECUTE] key is pressed while it is highlighted, the operation is stopped.

(Loads to be selected)

CPFC	Cassette transport clutch
TRC	Cassette paper feed clutch
MTRC	Manual paper feed clutch
MPFC	Manual transport clutch
GSS	Paper exit gate select solenoid
RRM	Resist roller motor (PSM)
PFM	Paper feed motor (Vertical transport)
FUM	Fusing motor
BLUM	Lift motor
BLUM (R)	Lift motor (Reverse rotation/waste toner transport motor)
OSM	Offset motor (Job separator)
CARB	Calibration plate

* When BLUM is ON, the belt moves up.
When BLUM is OFF, the belt moves down.

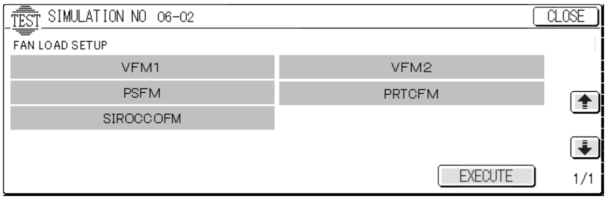

TEST SIMULATION NO. 06-01
CLOSE
FEED OUTPUT CHECK
CPFC
TRC
MTRC
MPFC
GSS
RRM
PFM
FUM
BLUM
BLUM(R)
OSM
CARB
EXECUTE

6 -2

Purpose	Operation test/check
Function (Purpose)	Used to check the operations of the fan motors and the control circuits.
Section	Others
Item	Operation
Operation/ Procedure	1. The loads that can be checked are displayed. Select one to be checked. 2. Press the [EXECUTE] key. The selected load is operated. During operation, the [EXECUTE] key is highlighted. If the [EXECUTE] key is pressed while it is highlighted, the operation is stopped.

(Loads to be selected.)

VFM1	Fusing fan 1
VFM2	Fusing fan 2
PSFM	Power fan
PRTCFM	Process exhaust fan
SIROCCOFM	Sirocco fan


TEST SIMULATION NO 06-02
CLOSE
FAN LOAD SETUP
VFM1
VFM2
PSFM
PRTCFM
SIROCCOFM
EXECUTE
1/1

7

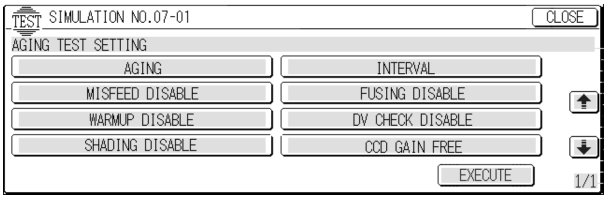
7 -1

Purpose	Setting/Operation test/check
Function (Purpose)	Used to set the aging conditions.
Item	Operation
Operation/ Procedure	1. Press each corresponding key to set for the aging operation. (Set items of each key) The selected key is highlighted. 2. Press the [EXECUTE] key. Aging is set and the display returns to the simulation main code entry menu.

* The setup contents of this simulation remain unchanged until the power is turned off. When this simulation is executed, SIM 7-8 (Warm-up time display setting) is canceled.

(Set content)

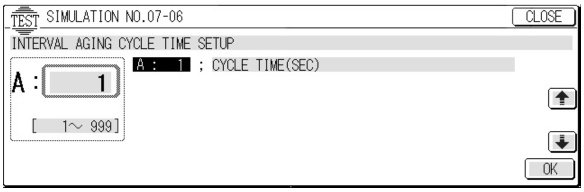
[AGING]	Jam detection setup
[INTERVAL]	Intermittent setup
[MISFEED DISABLE]	Jam detection YES/NO setup
[FUSING DISABLE]	Fusing operation YES/NO detection
[WARMUP DISABLE]	Warm-up saving setup
[DV CHECK DISABLE]	Developing tank detection YES/NO setup
[SHADING DISABLE]	Shading saving setup
[CCD GAIN FREE]	No setting of CCD gain adjustment


TEST SIMULATION NO.07-01
CLOSE
AGING TEST SETTING
AGING
INTERVAL
MISFEED DISABLE
FUSING DISABLE
WARMUP DISABLE
DV CHECK DISABLE
SHADING DISABLE
CCD GAIN FREE
EXECUTE
1/1

7 -6

Purpose	Setting/Operation test/check
Function (Purpose)	Used to set the cycle of intermittent aging.
Item	Operation
Operation/ Procedure	1. Enter the interval aging cycle time (sec) with the 10-key pad. 2. Press [OK] key (or B/W Start key, Color Start key) to set the entered cycle time.

∗ The interval time set range is 1 - 999 sec. [Default: 3]



SIMULATION NO.07-06

INTERVAL AGING CYCLE TIME SETUP

A : 1 ; CYCLE TIME(SEC)

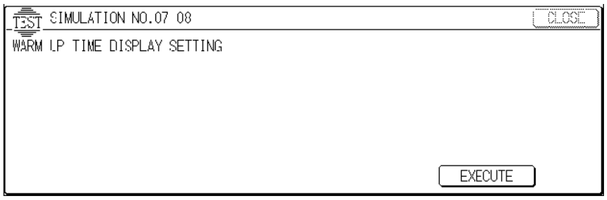
A : 1

[1～ 999]

7 -8

Purpose	Setting/Operation test/check
Function (Purpose)	Used to set Yes/No of warm-up time display.
Item	Operation
Operation/ Procedure	Press the [EXECUTE] key to set the warm-up time display. When the [EXECUTE] key is pressed, the warm-up time display setting is executed and the display returns to the simulation main code entry display.

∗ The setup contents of this simulation remain unchanged until the power is turned off. When SIM 7-1 is executed, the setup contents are canceled.



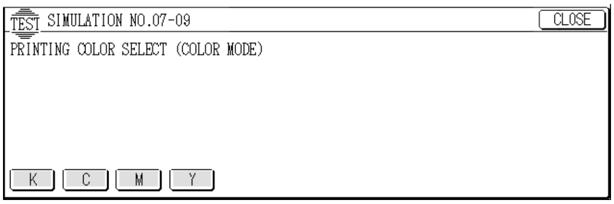
SIMULATION NO.07 08

WARM LP TIME DISPLAY SETTING

7 -9

Purpose	Setting/Operation test/check
Function (Purpose)	Used to check the image quality and operations of each color.
Section	Others
Item	Picture quality
Operation/ Procedure	1. Select the color of image quantity and operation check with the key. 2. Press the START key.

Copying is performed with the color selected in procedure 1). When no print color is selected, the operation is made with the all colors.



SIMULATION NO.07-09

PRINTING COLOR SELECT (COLOR MODE)

8

8 -1

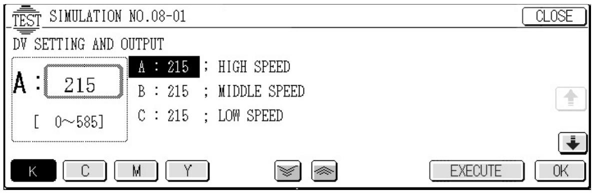
Purpose	Adjustment/Operation test/check
Function (Purpose)	Used to check and adjust the operations of the developing bias voltage of each color and the control circuit.
Section	Process (Photoconductor, developing, transfer, cleaning)
Operation/ Procedure	(The developing bias output voltage in each of the following print modes can be adjusted and checked.) (Adjustment range) 0 – 585 (Default: See below) 1. Select the color mode with the [K], [C], [M], or [Y] key. 2. Select the copy mode with the scroll key. 3. Enter the adjustment value with the 10-key pad. 4. Press the [EXECUTE] key.

The [EXECUTE] key is highlighted. When the adjustment value entered in procedure 2) and the corresponding voltage is outputted.

The voltage is outputted for 30sec, then the [EXECUTE] key returns to the normal display. When the EXECUTE key is pressed during output of the voltage, the output is stopped and the [EXECUTE] key returns to the normal display.

(Set value)

Color	Item	Operation mode	Adjustment value		Developing bias voltage			
					Monitor (High voltage PWB)		Pin No.	Actual voltage
			Adjustment range	Specified value (Default)	Monitor voltage (Specified value)	Connector		
K	A: HIGH SPEED	High speed (117mm/s) (B & W)	0 – 585	215	3.94 ± 0.1V	CNMONK	3	–215v
	B: MIDDLE SPEED	Middle speed (78mm/s) (Color) (B & W)	0 – 585	215	3.94 ± 0.1V	CNMONK	3	–215v
	C: LOW SPEED	Low speed (58.5mm/s) (Color) (B & W) (Special paper)	0 – 585	215	3.94 ± 0.1V	CNMONK	3	–215v
C	A: MIDDLE SPEED	Middle speed (78mm/s) (Color) (B & W)	0 – 585	265	5.76 ± 0.1V	CNMON	1	–265v
	B: LOW SPEED	Low speed (58.5mm/s) (Color) (B & W) (Special paper)	0 – 585	265	5.76 ± 0.1V	CNMON	1	–265v
M	A: MIDDLE SPEED	Middle speed (78mm/s) (Color) (B & W)	0 – 585	265	5.76 ± 0.1V	CNMON	5	–265v
	B: LOW SPEED	Low speed (58.5mm/s) (Color) (B & W) (Special paper)	0 – 585	265	5.76 ± 0.1V	CNMON	5	–265v
Y	A: MIDDLE SPEED	Middle speed (78mm/s) (Color) (B & W)	0 – 585	240	4.75 ± 0.1V	CNMON	9	–240v
	B: LOW SPEED	Low speed (58.5mm/s) (Color) (B & W) (Special paper)	0 – 585	240	4.75 ± 0.1V	CNMON	9	–240v



SIMULATION NO.08-01

DV SETTING AND OUTPUT

A : 215

[0~585]

A : 215 ; HIGH SPEED

B : 215 ; MIDDLE SPEED

C : 215 ; LOW SPEED

8 -2

Purpose	Adjustment/Operation test/check
Function (Purpose)	Used to check and adjust the operation of each print mode main charger grid voltage and the control circuit.
Section	Process (Photoconductor, developing, transfer, cleaning)
Operation/ Procedure	(The charging/grid output voltage in each print mode can be adjusted and checked.) 1. Select the color mode with the [K], [C], [M], and [Y] keys. * When [EXECUTE] key is pressed, the display is highlighted and the currently set voltage is outputted. 2. Select the print mode with [↑] key and [↓] key. 3. Enter the adjustment value with the 10-key pad. 4. Press the [EXECUTE] key.

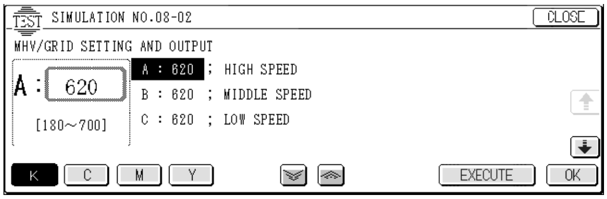
The [EXECUTE] key is highlighted, the adjustment value entered in procedure 2 is set, and the voltage corresponding to the set value is outputted.

The voltage is supplied for 30 sec, then the [EXECUTE] key returns to the normal display.

If the [EXECUTE] key is pressed while the voltage is supplied, the voltage output is stopped and the [EXECUTE] key returns to the normal display.

(Set value)

Color	Item	Operation mode	Adjustment value		Main charger grid voltage			
					Monitor (High voltage PWB)		Pin No.	Actual voltage
			Adjustment range	Specified value (Default)	Monitor voltage (Specified value)	Connector		
K	A: HIGH SPEED	High speed (117mm/s) (B & W)	180 – 700	620	53.5 ± 0.2v	CNMONK	1	–620v
	B: MIDDLE SPEED	Middle speed (78mm/s) (Color) (B & W)	180 – 700	620	53.5 ± 0.2v	CNMONK	1	–620v
	C: LOW SPEED	Low speed (58.5mm/s) (Color) (B & W) (Special paper)	180 – 700	620	53.5 ± 0.2v	CNMONK	1	–620v
C	A: MIDDLE SPEED	Middle speed (78mm/s) (Color) (B & W)	180 – 700	620	53.5 ± 0.2v	CNMON	3	–620v
	B: LOW SPEED	Low speed (58.5mm/s) (Color) (B & W) (Special paper)	180 – 700	620	53.5 ± 0.2v	CNMON	3	–620v
M	A: MIDDLE SPEED	Middle speed (78mm/s) (Color) (B & W)	180 – 700	620	53.5 ± 0.2v	CNMON	7	–620v
	B: LOW SPEED	Low speed (58.5mm/s) (Color) (B & W) (Special paper)	180 – 700	620	53.5 ± 0.2v	CNMON	7	–620v
Y	A: MIDDLE SPEED	Middle speed (78mm/s) (Color) (B & W)	180 – 700	620	53.5 ± 0.2v	CNMON	11	–620v
	B: LOW SPEED	Low speed (58.5mm/s) (Color) (B & W) (Special paper)	180 – 700	620	53.5 ± 0.2v	CNMON	11	–620v



SIMULATION NO.08-02

MHV/GRID SETTING AND OUTPUT

A : 620

[180~700]

A : 620 ; HIGH SPEED

B : 620 ; MIDDLE SPEED

C : 620 ; LOW SPEED

8 -6

Purpose	Adjustment/Operation test/check
Function (Purpose)	Used to check and adjust the operation of the transfer charger current and the control circuit.
Section	Process (Photoconductor, developing, Transfer transfer, cleaning)
Operation/ Procedure	1. Select the color mode with the [K], [C], [M], and [Y] keys. 2. Select the copy mode with the scroll key. 3. Enter the adjustment value with the 10-key pad. 4. Press the [EXECUTE] key.

The [EXECUTE] key is highlighted, the adjustment value entered in procedure 2 is set, and the voltage corresponding to the set value is outputted.

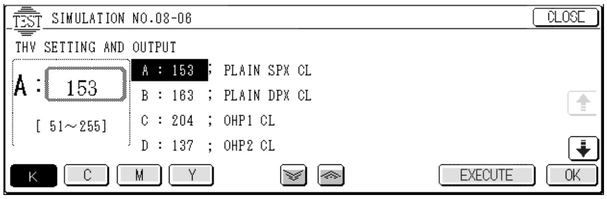
The voltage is supplied for 30 sec, then the [EXECUTE] key returns to the normal display.

If the [EXECUTE] key is pressed while the voltage is supplied, the voltage output is stopped and the [EXECUTE] key returns to the normal display.

In this simulation, when the transfer voltage is supplied, the transfer belt and the OPC drum rotates at the same time. Therefore, the above parts are not damaged.

(Items to be selected/replaced)

Item		Print mode			Standard setting value (Default)				Adjustment range	Output voltage (Kv)			
					K	C	M	Y		K	C	M	Y
A	PLAIN SPX CL	Color	Normal paper	78mm/s	153	141	119	119	51 - 255	2	2	2	2
B	PLAIN DPX CL	Color	Normal paper(Duplex mode)	78mm/s	168	155	129	129		2.3	2.3	2.3	2.3
C	OHP1 CL	Color	Transparency film 1	78mm/s	204	187	153	153		3	3	3	3
D	OHP2 CL	Color	Transparency film 2	58.5mm/s	137	150	153	163		1.7	2.2	3	3.3
E	HEAVY P1 SPX CL	Color	Thick paper 1	58.5mm/s	158	146	122	122		2.1	2.1	2.1	2.1
F	HEAVY P1 DPX CL	Color	Thick paper 1(Duplex mode)	58.5mm/s	188	173	142	142		2.7	2.7	2.7	2.7
G	HEAVY P2 CL	Color	Thick paper 2	58.5mm/s	173	159	132	132		2.4	2.4	2.4	2.4
H	ENVELOPE CL	Color	Envelope	78mm/s	153	141	119	119		2	2	2	2
I	PLAIN SPX BW	B & W	Normal paper	117mm/s	168					2.3			
J	PLAIN DPX BW	B & W	Normal paper(Duplex mode)	117mm/s	178					2.5			
K	OHP1 BW	B & W	Transparency film 1	78mm/s	204					3			
L	OHP2 BW	B & W	Transparency film 2	58.5mm/s	137					1.7			
M	HEAVY P1 SPX BW	B & W	Thick paper 1	58.5mm/s	147					1.9			
N	HEAVY P1 DPX BW	B & W	Thick paper 1(Duplex mode)	58.5mm/s	178					2.5			
O	HEAVY P2 BW	B & W	Thick paper 2	58.5mm/s	163					2.2			
P	ENVELOPE BW	B & W	Envelope	117mm/s	168					2.3			


SIMULATION NO.08-06

THV SETTING AND OUTPUT

A : 153

[51～255]

A : 153 ; PLAIN SPX CL
B : 163 ; PLAIN DPX CL
C : 204 ; OHP1 CL
D : 137 ; OHP2 CL

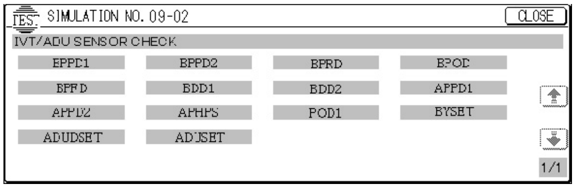
9

9 -2

Purpose	Operation test/check
Function (Purpose)	Used to check the operation of the sensors and detectors in the inverter/duplex section and the control circuit.
Section	Inverter/Duplex
Item	Operation
Operation/ Procedure	The operations of sensors and detectors in the inverter/duplex section are displayed. The active sensors and detectors are highlighted.

(Check item)

BPPD1	Inverter transport detection 1
BPPD2	Inverter transport detection 2
BPRD	Inverter reverse detection
BPOD	Inverter paper exit detection
BPFD	Inverter full detection
BDD1	Inverter door detection 1
BDD2	Inverter door detection 2
APPD1	ADU transport detection 1
APPD2	ADU transport detection 2
APHPS	ADU alignment plate home position
POD1	Machine paper exit detection
BYSET	Inverter installation detection
ADUDSET	ADU installation detection
ADUSET	ADU door open/close detection


SIMULATION NO. 09-02

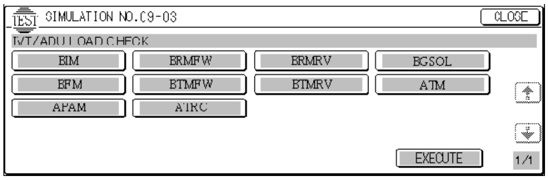
IVT/ADU SENSOR CHECK

9 -3

Purpose	Operation test/check
Function (Purpose)	Used to check the operations of the loads (motor, clutch, solenoid) in the inverter/duplex section and the control circuits.
Section	Inverter/Duplex
Item	Operation
Operation/ Procedure	1. Select the load to be checked with the 10-key pad. 2. Press the [EXECUTE] key. The load selected in procedure 1 operates.

While the load operates, the [EXECUTE] key is highlighted. When the [EXECUTE] key is pressed under this state, the operation of the load can be interrupted.

BIM	Inverter paper entry motor
BRMFW	Inverter reverse motor (Normal rotation)
BRMRV	Inverter reverse motor (Reverse rotation)
BGSOL	Inverter gate solenoid
BTMFW	Inverter transport motor (Normal rotation)
BTMRV	Inverter transport motor (Reverse rotation)
ATM	ADU transport motor
APAM	ADU alignment motor
ATRC	ADU transport clutch


SIMULATION NO.09-03

IVT/ADU LOAD CHECK

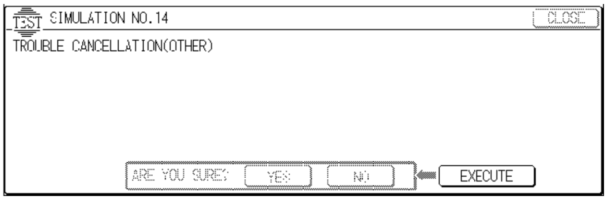
14

14 -0

Purpose	Clear/cancel (Trouble etc.)	
Function (Purpose)	Used to cancel self diag troubles H3, H4, and H5. Inhibition of the color copy mode operation is canceled.	
Item	Trouble	Error
Operation/ Procedure	1. Press the [EXECUTE] key. (YES/NO key display) 2. When YES key is pressed, the following troubles are cleared. (Cancel with NO key.)	

(Trouble codes to be canceled)

Target trouble codes	Descriptions
H3-00	Heat roller high temperature detection (HL1)
H3-01	Heat roller high temperature detection (HL2)
H4-00	Heat roller low temperature detection (HL1)
H4-01	Heat roller low temperature detection (HL2)
H5-01	Five continuous detections of POD1 not-reached jam



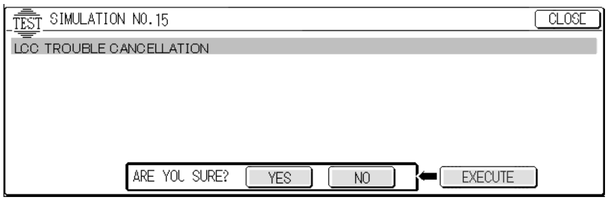
SIMULATION NO.14

TROUBLE CANCELLATION(OTHER)

15

15 -0

Purpose	Clear/cancel (Trouble etc.)	
Function (Purpose)	Self diag U6-09 (large capacity paper feed tray) trouble cancel	
Section	Paper feed	
Item	Trouble	Error
Operation/ Procedure	Press the [EXECUTE] key to cancel the trouble. * Press the [CLOSE] key to terminate the simulation.	



SIMULATION NO.15

LCC TROUBLE CANCELLATION

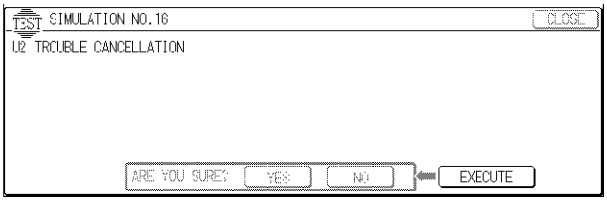
16

16 -0

Purpose	Clear/cancel (Trouble etc.)	
Function (Purpose)	Used to cancel self diag trouble U2.	
Item	Trouble	Error
Operation/ Procedure	1. Press the [EXECUTE] key. (YES/NO key display) 2. When YES key is pressed, the following troubles are cleared. (Cancel with NO key.)	

(Trouble codes to be canceled)

Target trouble codes	Descriptions
U2-00	EEPROM read/write error (OPE)
U2-11	EEPROM check sum error (OPE)
U2-80	EEPROM read/write error (SCN)
U2-81	EEPROM check sum error (SCN)
U2-90	EEPROM read/write error (PCU)
U2-91	EEPROM check sum error (PCU)



SIMULATION NO.16

U2 TROUBLE CANCELLATION

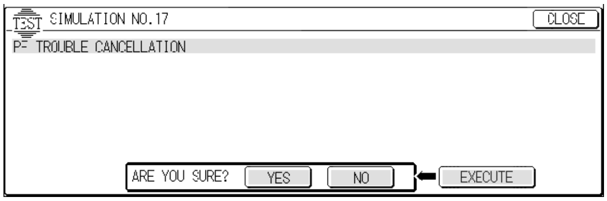
17

17 -0

Purpose	Clear/cancel (Trouble etc.)	
Function (Purpose)	Used to cancel self diag troubles PF (copy inhibition command from the host computer).	
Section	Communication (RIC/MODEM)	
Item	Trouble	Error
Operation/ Procedure	1. Press the [EXECUTE] key. (YES/NO key display) 2. When YES key is pressed, the following troubles are cleared. (Cancel with NO key.)	

(Trouble codes to be canceled)

Target trouble codes	Descriptions
PF-00	PC copy inhibition signal reception



SIMULATION NO.17

PF TROUBLE CANCELLATION

21

21 -1

Purpose	Setting	
Function (Purpose)	Used to set the maintenance cycle.	
Item	Specifications	Counter
Operation/ Procedure	1. The current setup is displayed. (Highlighted) 2. When the maintenance cycle is selected with the key, the selected key is highlighted.	

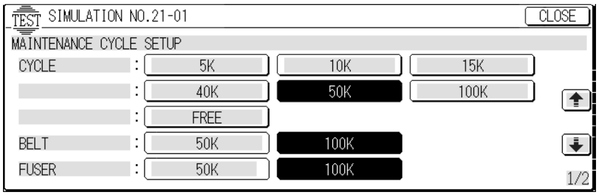
The maintenance message is displayed in every selected cycle.

When FREE is selected, the maintenance display is not shown.

(Cycle to be set)

Item	Set value	Content	Default
CYCLE	0	5K	50K
	1	10K	
	2	15K	
	3	40K	
	4	50K	
	5	100K	
	6	FREE	

Item	Set value	Content	Default
BELT	50	100K	100K
	100	100K	
FUSER	50	100K	100K
	100	100K	


TEST SIMULATION NO.21-01

MAINTENANCE CYCLE SETUP
CYCLE : 5K 10K 15K
: 40K 50K 100K
: FREE
BELT : 50K 100K
FUSER : 50K 100K

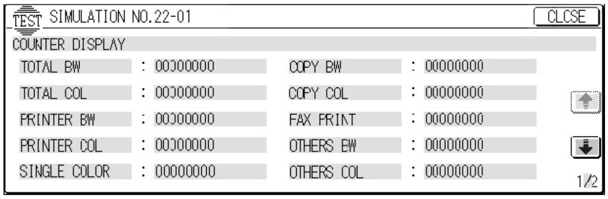
22

22 -1

Purpose	Adjustment/Setting/Operation data output and check (display, print)
Function (Purpose)	Used to check the print count value in each section and each operation mode. (Used to check the maintenance timing.)
Item	Counter
Operation/ Procedure	The counter values are displayed.

(Counter values to be displayed)

TOTAL BW	All valid paper counters (B/W)
TOTAL COL	All valid paper counters (Color)
PRINTER BW	Print counter (B/W)
PRINTER COL	Print counter (Color)
SINGLE COLOR	Single color
COPY BW	Copy counter (B/W)
COPY COL	Copy counter (Color)
FAX PRINT	FAX print counter (B/W only)
OTHERS BW	Other counter (B/W only)
OTHERS COL	Other counter (Color)
MAINTENANCE ALL	Maintenance counter (Total)
MAINTENANCE COL	Maintenance counter (Color)
BELT UNIT	Transfer unit print counter
BELT UNIT RANGE	Transfer unit accumulated mileage
BELT UNIT DAY	Transfer unit use days
FUSER UNIT	Fusing unit print counter
FUSER ACUM DAY	Fusing unit use days
BELT WTN STS	Display of transfer section waste toner full detection state (NONE: Neither of Full or Near Full, NEA: Near Full state, FULL: Full state)
BELT WTN END	Print quantity after transfer section waste toner near full detection (The numerator indicates the print quantity after waste toner near full detection. The denominator indicates the printable quantity after waste toner near full detection.)


TEST SIMULATION NO.22-01

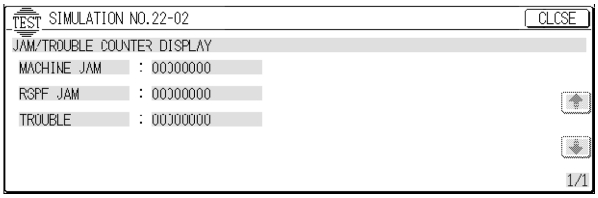
COUNTER DISPLAY
TOTAL BW : 00000000
TOTAL COL : 00000000
PRINTER BW : 00000000
PRINTER COL : 00000000
SINGLE COLOR : 00000000
COPY BW : 00000000
COPY COL : 00000000
FAX PRINT : 00000000
OTHERS BW : 00000000
OTHERS COL : 00000000

22 -2

Purpose	Adjustment/Setting/Operation data output, check (display, print)
Function (Purpose)	Used to check the total misfeed count and the total trouble count. (If the misfeed count is considerably great, it may be judged as necessary to repair. By dividing this count by the total count, the misfeed rate can be obtained.)
Item	Trouble
Operation/ Procedure	The counter values are displayed.

(Display contents)

Display	Content
MACHINE JAM	Machine jam counter
RSPF JAM	Automatic document feeder jam counter
TROUBLE	Trouble counter


TEST SIMULATION NO.22-02

JAM/TROUBLE COUNTER DISPLAY
MACHINE JAM : 00000000
RSPF JAM : 00000000
TROUBLE : 00000000

22 -3

Purpose	Adjustment/Setting/Operation data output, check (display, print)
Function (Purpose)	Used to check misfeed positions and the misfeed count of each position. (If the misfeed count is considerably great, it may be judged as necessary to repair.) (Machine section only)
Item	Trouble Misfeed
Operation/ Procedure	Used to display the misfeed history.

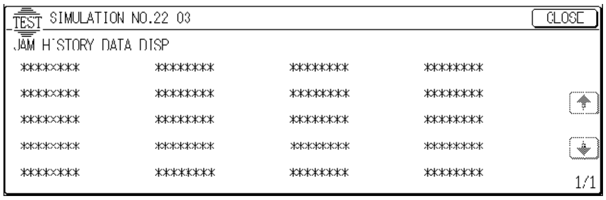
The misfeed history sections are displayed sequentially from the latest one. Max. 50 items of information can be stored, and the oldest one is deleted sequentially. The trouble position may be presumed with this data.

(Jam code list)

Group	Sensor	Display	Comment
Paper feed	–	********	
	PFD1	TRAY1	Tray 1 paper feed jam (PFD1 not-reached jam)
		PFD1_ND1	PFD1 not-reached jam (Desk 1 feed paper)
		PFD1_ND2	PFD1 not-reached jam (Desk 2 feed paper)
		PFD1_ND3	PFD1 not-reached jam (Desk 3 feed paper)
		PFD1_NDU	PFD1 not-reached jam (ADU feed paper)
		PFD1_ST1	PFD1 remaining jam (Tray 1 feed paper)
		PFD1_SD1	PFD1 remaining jam (Desk 1 feed paper)
		PFD1_SD2	PFD1 remaining jam (Desk 2 feed paper)
		PFD1_SD3	PFD1 remaining jam (Desk 3 feed paper)
		PFD1_SDU	PFD1 remaining jam (ADU feed paper)

Group	Sensor	Display	Comment
Paper feed	PFD1	PPD1_NT1	PPD1 not-reached jam (Tray 1 feed paper)
		PPD1_ND1	PPD1 not-reached jam (Desk 1 feed paper)
		PPD1_ND2	PPD1 not-reached jam (Desk 2 feed paper)
		PPD1_ND3	PPD1 not-reached jam (Desk 3 feed paper)
		PPD1_NDU	PPD1 not-reached jam (ADU feed paper)
		PPD1_ST1	PPD1 remaining jam (Tray 1 feed paper)
		PPD1_SD1	PPD1 remaining jam (Desk 1 feed paper)
		PPD1_SD2	PPD1 remaining jam (Desk 2 feed paper)
		PPD1_SD3	PPD1 remaining jam (Desk 3 feed paper)
		PPD1_SDU	PPD1 remaining jam (ADU feed paper)
	PPD2	MFT	Manual feed tray paper feed jam (PPD2 not-reached)
		PPD2_NT1	PPD2 not-reached jam (Tray 1 feed paper)
		PPD2_ND1	PPD2 not-reached jam (Desk 1 feed paper)
		PPD2_ND2	PPD2 not-reached jam (Desk 2 feed paper)
		PPD2_ND3	PPD2 not-reached jam (Desk 3 feed paper)
		PPD2_NDU	PPD2 not-reached jam (ADU feed paper)
		PPD2_NLC	PPD2 not-reached jam (LCC feed paper)
		PPD2_SMF	PPD2 remaining jam (Manual paper feed tray feed paper)
		PPD2_ST1	PPD2 remaining jam (Tray 1 feed paper)
		PPD2_SD1	PPD2 remaining jam (Desk 1 feed paper)
		PPD2_SD2	PPD2 remaining jam (Desk 2 feed paper)
		PPD2_SD3	PPD2 remaining jam (Desk 3 feed paper)
		PPD2_SDU	PPD2 remaining jam (ADU feed paper)
		PPD2_SLC	PPD2 remaining jam (LCC feed paper)
Transport system	POD1	POD1_NT1	POD1 not-reached jam (Tray 1 feed paper)
		POD1_ND1	POD1 not-reached jam (Desk 1 feed paper)
		POD1_ND2	POD1 not-reached jam (Desk 2 feed paper)
		POD1_ND3	POD1 not-reached jam (Desk 3 feed paper)
		POD1_NDU	POD1 not-reached jam (Desk duplex tray feed paper)
		POD1_NLC	POD1 not-reached jam (LCC feed paper)
		POD1_NMF	POD1 not-reached jam (Manual tray feed paper)
		POD1_ST1	POD1 remaining jam (Tray 1 feed paper)
		POD1_SD1	POD1 remaining jam (Desk 1 feed paper)
Transport system	POD1	POD1_SD2	POD1 remaining jam (Desk 2 feed paper)
		POD1_SD3	POD1 remaining jam (Desk 3 feed paper)
		POD1_SDU	POD1 remaining jam (Desk duplex tray feed paper)
		POD1_SLC	POD1 remaining jam (LCC paper feed tray)
		POD1_SMF	POD1 remaining jam (Manual tray feed paper)
	POD2	POD2_N	POD2 not-reached jam
		POD2_S	POD2 remaining jam
Desk	DPPD1	DESK1	Desk 1 paper feed jam (DPPD1 not-reached)
		DPPD1ND2	DPPD1 not-reached jam (Desk 2 feed paper)
		DPPD1ND3	DPPD1 not-reached jam (Desk 3 feed paper)
		DPPD1NDU	DPPD1 not-reached jam (Desk duplex tray feed paper)
		DPPD1SD1	DPPD1 remaining jam (Desk 1 feed paper)
		DPPD1SD2	DPPD1 remaining jam (Desk 2 feed paper)
		DPPD1SD3	DPPD1 remaining jam (Desk 3 feed paper)
		DPPD1SDU	DPPD1 remaining jam (Desk duplex tray feed paper)
	DPPD2	DESK2	Desk 2 paper feed jam (DPPD2 not-reached)
		DPPD2ND3	DPPD1 not-reached jam (Desk 2 feed paper)
		DPPD2SD2	DPPD1 not-reached jam (Desk 3 feed paper)
		DPPD2SD3	DPPD1 not-reached jam (Desk duplex tray feed paper)
	DPPD3	DESK3	Desk 3 paper feed jam (DPPD2 not-reached)
		DPPD3SD3	DPPD1 remaining jam (Desk 3 feed paper)
LCC	LPFD	LCC	LCC paper feed jam (LPFD not-reached)
		LPFD_S	LCC unit LPFD remaining jam
Inverter	BPPD1	BPPD1_N	Inverter transport sensor 1 (BPPD1) not-reached jam
		BPPD1_S	Inverter transport sensor 1 (BPPD1) remaining jam
	BPPD2	BPPD2_N	Inverter transport sensor 2 (BPPD2) not-reached jam
		BPPD2_S	Inverter transport sensor 2 (BPPD2) remaining jam
	BPOD	BPOD_N	Inverter paper exit sensor (BPOD) not-reached jam
		BPOD_S	Inverter paper exit sensor (BPOD) remaining jam
	BPRD	BPRD_N	Inverter reverse sensor (BPRD) not-reached jam
		BPRD_S	Inverter reverse sensor (BPRD) remaining jam
ADU	APPD1	APPD1_N	ADU transport sensor 1 (APPD1) not-reached jam
		APPD1_S	ADU transport sensor 1 (APPD1) remaining jam
	APPD2	APPD2_N	ADU transport sensor 2 (APPD2) not-reached jam
		APPD2_S	ADU transport sensor 2 (APPD2) remaining jam

Group	Sensor	Display	Comment
Finisher	FES	FES_N	Inlet port sensor (FES) not-reached jam
		FES_S	Inlet port sensor (FES) remaining jam
	FFPS	FFPS_N	Binding position sensor (FFPS) not-reached jam
		FFPS_S	Binding position sensor (FFPS) remaining jam
	FSTPL	FSTPL	Staple (FSTPL) jam
	FPNCH	FPNCH	Punch (FPNCH) jam
	FDOP	FDOP	Door open (FDOP) jam
	FPUSH	FPUSH	Bundle roller pinching (FPUSH) jam
Sorter	SPPD	SPPD_N	Sorter transport sensor (SPPD) not-reached jam
		SPPD_S	Sorter transport sensor (SPPD) remaining jam
	SDOP	SDOP	Sorter door open (SDOP) jam
PRT	PRE	PRE_T1	Image preparation not-reached jam (Tray 1 feed paper)
		PRE_D1	Image preparation not-reached jam (Desk 1 feed paper)
		PRE_D2	Image preparation not-reached jam (Desk 2 feed paper)
		PRE_D3	Image preparation not-reached jam (Desk 3 feed paper)
		PRE_DU	Image preparation not-reached jam (Desk duplex tray feed paper)
		PRE_LC	Image preparation not-reached jam (LICK feed paper)
		PRE_MF	Image preparation not-reached jam (Manual feed tray feed paper)



```
SIMULATION NO.22 03
JAM HISTORY DATA DISP
********    ********    ********    ********
********    ********    ********    ********
********    ********    ********    ********
********    ********    ********    ********
********    ********    ********    ********
```

22 -4

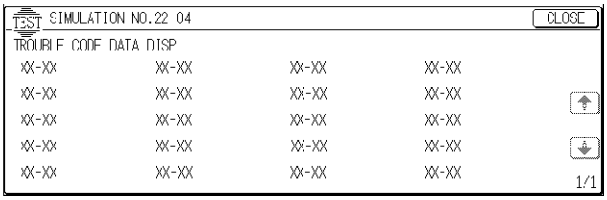
Purpose	Adjustment/Setting/Operation data output, check (display, print)
Function (Purpose)	Used to check the total trouble (self diag) history.
Item	Trouble
Operation/ Procedure	Used to display the total trouble history.

The trouble history error codes are displayed sequentially from the latest one. Max. 30 items of information can be stored, and the oldest one is deleted sequentially. The machine condition can be presumed according to this data.

(Trouble code list)

Main code	Sub code	Content
C2	10	Transfer charger error (Black)
E7	01	Image data memory trouble
	10	Shading trouble (Black correction)
	11	Shading trouble (White correction)
	20	LED controller initial trouble (Black)
	21	LED controller initial trouble (Cyan)
	22	LED controller initial trouble (Magenta)
	23	LED controller initial trouble (Yellow)
	24	LED controller output trouble (Black)
	25	LED controller output trouble (Cyan)
	26	LED controller output trouble (Magenta)
	27	LED controller output trouble (Yellow)
	28	LED control ASIC connection abnormality
	40	Color correction data write error
	41	Color correction data transfer error
	80	ICU-SCN communication trouble
	90	ICU-PCU communication trouble
F1	00	Saddle finisher/sorter communication trouble (PCU detection)
	02	Saddle finisher transport motor trouble (Saddle finisher detection)
	03	Saddle finisher paddle motor trouble
	06	Saddle finisher slide motor trouble
	10	Saddle finisher staple motor abnormality (Saddle finisher detection)
	11	Saddle finisher bundle process motor abnormality (Saddle finisher detection)
	15	Saddle finisher tray lift motor abnormality (Saddle finisher detection)
	19	Saddle finisher front alignment motor abnormality (Saddle finisher detection)
	20	Saddle finisher rear alignment motor abnormality (Saddle finisher detection)
	31	Saddle finisher folding sensor trouble
	32	Saddle finisher punch unit communication trouble
	33	Saddle finisher punch side resist motor trouble
	34	Saddle finisher punch motor trouble
	35	Saddle finisher punch side resist sensor trouble
	36	Saddle finisher punch resist sensor trouble
	37	Saddle finisher/sorter backup RAM trouble
	38	Saddle finisher punch backup ROM trouble
	39	Saddle finisher punch dust sensor trouble
	40	Saddle finisher punch power off trouble
	83	Sorter push bar motor abnormality
	89	Sorter bin shift motor abnormality
	91	Automatic adjustment trouble of the paper sensor in the sorter bin
F2	39	Process thermistor trouble
	40	Toner empty sensor abnormality (Black)
	41	Toner empty sensor abnormality (Cyan)
	42	Toner empty sensor abnormality (Magenta)
	43	Toner empty sensor abnormality (Yellow)
	44	Image density sensor (for black) trouble (Transfer belt surface reflection ratio abnormality)
	45	Image density sensor (for color) trouble (Calibration plate surface reflection ratio abnormality)
	58	Process humidity sensor trouble
	70	Developing unit improper cartridge detection (Black)
	71	Developing unit improper cartridge detection (Cyan)
	72	Developing unit improper cartridge detection (Magenta)

Main code	Sub code	Content
F2	73	Developing unit improper cartridge detection (Yellow)
	74	Developing unit CRUM trouble (Black)
	75	Developing unit CRUM trouble (Cyan)
	76	Developing unit CRUM trouble (Magenta)
	77	Developing unit CRUM trouble (Yellow)
	78	Registration trouble
	80	Half-tone process control 1st batch error (Black)
	81	Half-tone process control 1st batch error (Cyan)
	82	Half-tone process control 1st batch error (Magenta)
	83	Half-tone process control 1st batch error (Yellow)
	84	Half-tone process control 2nd batch error (Black)
	85	Half-tone process control2nd batch error (Cyan)
	86	Half-tone process control 2nd batch error (Magenta)
	87	Half-tone process control 2nd batch error (Yellow)
	90	Half-tone process control limit error
F3	12	Cassette 1 lift-up trouble
F6	00	ICU-FAX communication trouble
	01	FAX expansion flash memory error
	04	FAX MODEM operation error
	20	FAX write protect cancel
	21	Combination error between the TEL/LIU PWB and the FAX soft switch
	97	The FAX-BOX PWB is not one for the AR-C170M. (FAX detection)
	98	Combination error between the FAX-BOX destination information and the main unit destination information.
F7	01	FAX board EEPROM read/write error
F9	00	ICU-PRT communication trouble (ICU detection)
	01	PRT DRAM trouble
	03	NIC port check error
	20	HDD trouble (PRT controller detection)
H2	00	Thermistor open (HL1)
	01	Thermistor open (HL2)
H3	00	Fusing section high temperature trouble (HL1)
	01	Fusing section high temperature trouble (HL2)
H4	00	Fusing section low temperature trouble (HL1)
	01	Fusing section low temperature trouble (HL2)
H5	01	5 continuous detections of POD1 not-reached jam
L1	00	Mirror feed trouble
L3	00	Mirror return trouble
L4	02	Paper feed motor lock trouble
	06	Transfer belt lift motor trouble
	07	Transfer belt motor trouble
	11	Shift motor trouble
L8	01	No full wave signal
	02	Full wave signal width abnormality
	04	Main switch abnormality detection
PF	00	RIM copy inhibit signal reception
U0	00	ICU-OPE communication trouble (ICU/OPE detection)
U1	01	FAX battery trouble
	02	RTC read trouble
U2	00	EEPROM read/write error (SCN detection)
	11	EEPROM check sum error (SCN detection)
	22	SRAM memory check sum error
	30	Manufacturing No. data discrepancy (ICU ⇔ PCU)
	80	EEPROM read/write error (SCN detection)
	81	EEPROM check sum error (SCN detection)
	90	EEPROM read/write error (PCU detection)
	91	EEPROM check sum error (PCU detection)
U4	02	ADU alignment plate operation abnormality
U6	00	Desk communication trouble
	01	Desk tray 1 lift motor trouble
	02	Desk tray 2 lift motor trouble
	03	Desk tray 3 lift motor trouble
	09	LCC lift motor trouble
	10	Desk transport motor trouble
	20	LCC communication trouble
	21	LCC transport motor trouble
	22	LCC 24V power abnormality
	50	Desk incompatible trouble
	51	LCC incompatible trouble
U7	00	RIC communication trouble
UC	02	CPT-ASIC trouble (MFP PWB trouble)



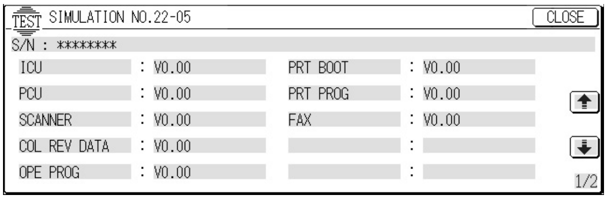
```
SIMULATION NO.22 04
TROUBLE CODE DATA DISP
XX-XX          XX-XX          XX-XX          XX-XX
XX-XX          XX-XX          XX-XX          XX-XX
XX-XX          XX-XX          XX-XX          XX-XX
XX-XX          XX-XX          XX-XX          XX-XX
XX-XX          XX-XX          XX-XX          XX-XX
```

22 -5

Purpose	Others
Function (Purpose)	Used to check the ROM version of each unit (section).
Item	Software
Operation/ Procedure	If there is any problem in the software, check the ROM version of each section with this simulation and replace with a new version if necessary.

(Sections to be displayed)

ICU	ICU control
PCU	Engine control section
SCANNER	Scanner control section
COL REV DATA	Color correction ROM
OPE PROG	OPE control section
PRT BOOT	PRT boot
PRT PROG	PRT control section
FAX	FAX control section
FIN-SORTER	Finisher/Sorter
PUNCH	Punch unit
DESK	Desk
LCC	Large capacity cassette
NIC	NIC
PS	PostScript

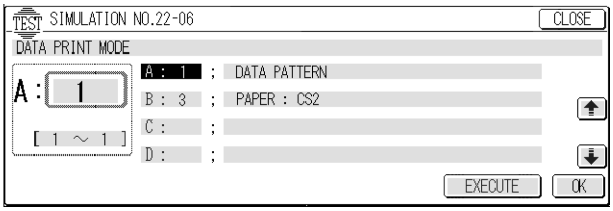


```
SIMULATION NO.22-05
S/N : ********
ICU            : V0.00      PRT BOOT   : V0.00
PCU            : V0.00      PRT PROG   : V0.00
SCANNER        : V0.00      FAX        : V0.00
COL REV DATA   : V0.00                 :
OPE PROG       : V0.00                 :
```

22 -6

Purpose	Adjustment/Setting/Operation data output, check, (display, print)
Function (Purpose)	Used to print the setting and adjustment data list.
Item	Data Setting/Adjustment data
Operation/ Procedure	When installing or servicing, execute this simulation to print and store the adjustment values and setting data for use in the next servicing. (Memory trouble, PWB replacement, etc.) In this case, the print conditions can be set optionally. 1. Select the setup item. (The selected item is highlighted.) 2. Set the item and conditions with the 10-key pad. 3. Press the [EXECUTE] key to print various data.

Item	Display item		Low	High	Default	Description
A	DATA PATTERN		1	1	1	
	=1					
B	PAPER SELECT		1	6	2	Cassette selection
	=1	MANUAL				Manual paper feed
	=2	CAS1				Cassette 1
	=3	CAS2				Cassette 2
	=4	CAS3				Cassette 3
	=5	CAS4				Cassette 4
	=6	LCC				LCC



A : 1

[1 ～ 1]

A : 1 ; DATA PATTERN

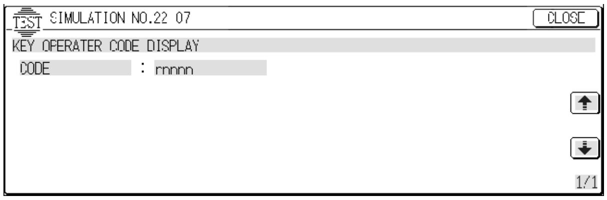
B : 3 ; PAPER : CS2

C : ;

D : ;

22 -7

Purpose	User data output/Check (Display/Print)
Function (Purpose)	Used to display the key operator code. (Used when the customer forgets the key operator code.)
Item	Data User data
Operation/ Procedure	The key operator code is displayed.

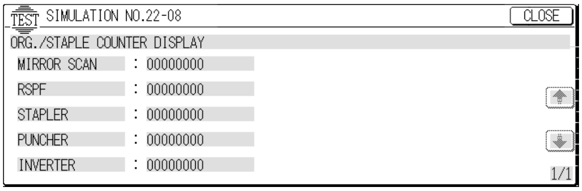


CODE : nnnnn

22 -8

Purpose	Adjustment/Setting/Operation data output, check (display, print)
Function (Purpose)	Used to check the number of scan (read) of the staple and the document feed unit.
Item	Counter
Operation/ Procedure	Various counter values are displayed. This data is used to check the use frequency of each section. According to this data, maintenance is executed. (Counter values to be displayed with this simulation)

Display	Content
MIRROR SCAN	Scan counter
RSPF	Document feed unit
STAPLER	Staple counter
PUNCHER	Puncher counter
INVERTER	Inverter counter



MIRROR SCAN : 00000000

RSPF : 00000000

STAPLER : 00000000

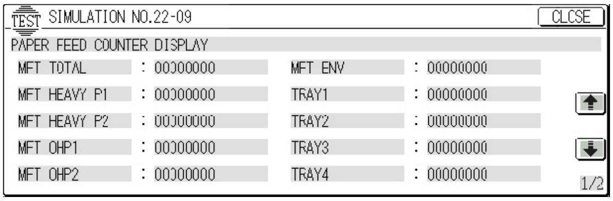
PUNCHER : 00000000

INVERTER : 00000000

22 -9

Purpose	Adjustment/Setting/Operation data output, check (display, print)
Function (Purpose)	Used to check the number of uses (print quantity) of each paper feed section.
Section	Paper feed
Item	Counter
Operation/ Procedure	The counter values are displayed. This data is used to check the use frequency of each paper feed section. According to this data, maintenance is performed. (Counter values to be displayed with this simulation)

Display	Content
MFT TOTAL	Manual paper feed (total) counter
MFT HEAVY P1	Manual paper feed (heavy paper 1) counter
MFT HEAVY P2	Manual paper feed (heavy paper 2) counter
MFT OHP1	Manual paper feed (OHP1) counter
MFT OHP2	Manual paper feed (OHP2) counter
MFT ENV	Manual paper feed (Envelope) counter
TRAY1	Tray 1 counter
TRAY2	Tray 2 counter
TRAY3	Tray 3 counter
TRAY4	Tray 4 counter
LCC	LCC counter
ADU	Duplex counter



MFT TOTAL : 00000000 MFT ENV : 00000000

MFT HEAVY P1 : 00000000 TRAY1 : 00000000

MFT HEAVY P2 : 00000000 TRAY2 : 00000000

MFT OHP1 : 00000000 TRAY3 : 00000000

MFT OHP2 : 00000000 TRAY4 : 00000000

22 -10

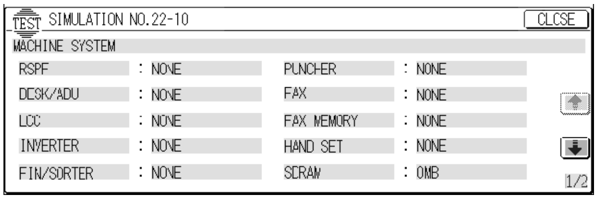
Purpose	Adjustment/Setting/Operation data output, check (display, print)
Function (Purpose)	Used to check the system configuration (option, internal hardware).
Item	Specifications Option
Operation/ Procedure	The counter values are displayed.

This simulation allows to check the system configuration. The devices and the option units which are installed are displayed with the model names, etc.

RSPF	Automatic document feeder
DESK/ADU	Desk/Duplex unit
LCC	Large capacity cassette
INVERTER	Bypass module
FIN/SORTER	Rear process unit
PUNCHER	Punch unit
FAX	FAX
FAX MEMORY	FAX expansion memory
HAND SET	Handset
SDAM	SDRAM capacity
PRINTER	Printer
PRINTER MEMORY	Printer memory
HDD	Hard disk capacity
NIC	NIC
NETWORK SCANNER	Network scanner
FONT ROM	Kanji font
PS	PostScript

When installed: The model number of each unit is displayed.

When not installed: "NONE" is displayed.



SIMULATION NO.22-10

MACHINE SYSTEM

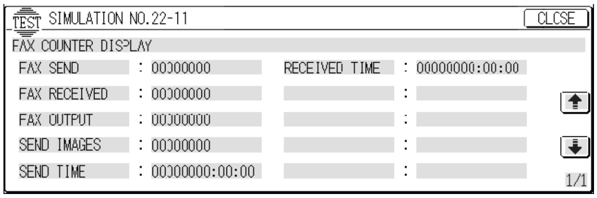
RSPF : NONE
DESK/ADU : NONE
LCC : NONE
INVERTER : NONE
FIN/SORTER : NONE
PUNCHER : NONE
FAX : NONE
FAX MEMORY : NONE
HAND SET : NONE
SCRAM : 0MB

22 -11

Purpose	Adjustment/Setting/Operation data output, check (display, print)
Function (Purpose)	Used to check the number of use of FAX. (With FAX installed)
Section	FAX
Item	Counter
Operation/ Procedure	The FAX send/receive counter value is displayed.

(Counter values to be displayed)

Display	Content
FAX SEND	FAX send counter
FAX RECEIVED	FAX receive counter
FAX OUTPUT	FAX print number
SEND IMAGES	FAX send number counter
SEND TIME	FAX send time
RECEIVED TIME	FAX receive time



SIMULATION NO.22-11

FAX COUNTER DISPLAY

FAX SEND : 00000000
FAX RECEIVED : 00000000
FAX OUTPUT : 00000000
SEND IMAGES : 00000000
SEND TIME : 00000000:00:00
RECEIVED TIME : 00000000:00:00

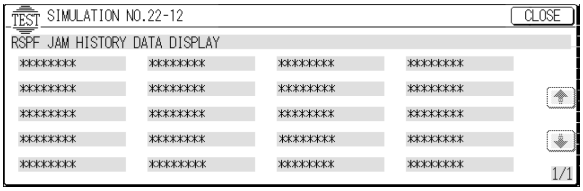
22 -12

Purpose	Adjustment/Setting/Operation data output, check (display, print)
Function (Purpose)	Used to check the misfeed positions and the number (history) of misfeed at each position. (If the misfeed count is considerably great, it may be judged as necessary to repair.)
Section	Automatic document feeder Option
Item	Trouble Misfeed
Operation/ Procedure	The misfeed counter value is displayed.

The misfeed history positions in automatic document feeder are displayed with the names of sensors and detectors from the latest one. Max. 50 items of information can be stored, and the oldest one is deleted sequentially. The machine condition can be estimated according to this data.

(Jam code list)

		Code	Content
SPF	SPAPER	SPAPER_N	SPF paper feed sensor not-reached jam
		SPAPER_S	SPF paper feed sensor remaining jam
	SPOUT	SPOUT_N	SPF paper exit sensor not-reached jam
		SPOUT_S	SPF paper exit sensor remaining jam



SIMULATION NO.22-12

RSPF JAM HISTORY DATA DISPLAY

******** ******** ******** ********
******** ******** ******** ********
******** ******** ******** ********
******** ******** ******** ********
******** ******** ******** ********

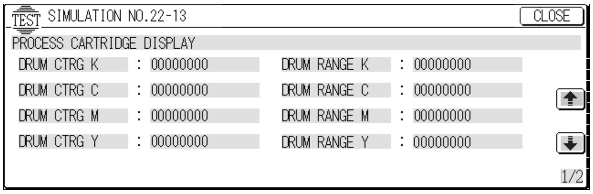
22 -13

Purpose	Adjustment/Setting/Operation data output, check (display, print)
Function (Purpose)	Used to check the process cartridge counter. (If the count number is considerably great, it may be judged as necessary for repair.)
Section	Process section
Item	Counter
Operation/ Procedure	The process counter value of the process cartridge is displayed.

(Counter values to be displayed)

Display	Content
DRUM CTRG K	Drum cartridge print counter (K)
DRUM CTRG C	Drum cartridge print counter (C)
DRUM CTRG M	Drum cartridge print counter (M)
DRUM CTRG Y	Drum cartridge print counter (Y)
DRUM RANGE K	Drum cartridge accumulated mileage time (mm) (K)
DRUM RANGE C	Drum cartridge accumulated mileage time (mm) (C)
DRUM RANGE M	Drum cartridge accumulated mileage time (mm) (M)
DRUM RANGE Y	Drum cartridge accumulated mileage time (mm) (Y)
TONER RANGE K	Toner cartridge accumulated mileage time (mm) (K)
TONER RANGE C	Toner cartridge accumulated mileage time (mm) (C)
TONER RANGE M	Toner cartridge accumulated mileage time (mm) (M)

Display	Content
TONER RANGE Y	Toner cartridge accumulated mileage time (mm) (Y)


TEST SIMULATION NO.22-13

PROCESS CARTRIDGE DISPLAY

DRUM CTRG K : 00000000 DRUM RANGE K : 00000000
DRUM CTRG C : 00000000 DRUM RANGE C : 00000000
DRUM CTRG M : 00000000 DRUM RANGE M : 00000000
DRUM CTRG Y : 00000000 DRUM RANGE Y : 00000000

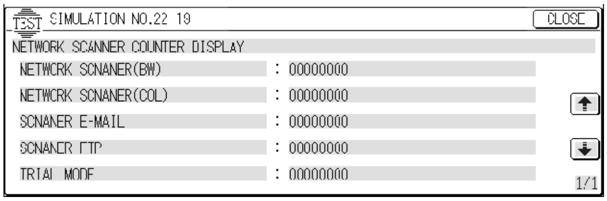
1/2

22 -19

Purpose	Adjustment/Setting/Operation data output, check (display, print)
Function (Purpose)	Used to check the counters related to the network scanner.
Section	Network scanner
Item	Counter
Operation/ Procedure	The counter values related to the network scanner are displayed.

(Counter values to be displayed)

Display	Content
NETWORK SCANNER (BW)	Network scanner document scan number counter (B/W)
NETWORK SCANNER (COL)	Network scanner document scan number counter (Color)
SCANNER E-MAIL	Scanner e-mail transmit counter
SCANNER FTP	Scanner FTP transmit counter
TRIAL MODE	Trial mode counter


TEST SIMULATION NO.22 19

NETWORK SCANNER COUNTER DISPLAY

NETWORK SCNANER(BW) : 00000000
NETWORK SCNANER(COL) : 00000000
SCNANER E-MAIL : 00000000
SCNANER FTP : 00000000
TRIAL MODE : 00000000

1/1

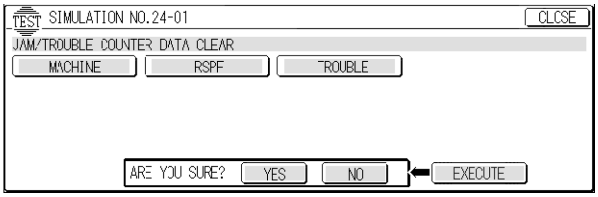
24

24 -1

Purpose	Data clear
Function (Purpose)	Used to clear the misfeed counter, the misfeed history, the trouble counter, and the trouble history. (After completion of maintenance, the counters are cleared.)
Section	Memory
Item	Counter
Operation/ Procedure	1. Select the counter to be cleared. 2. Press the [EXECUTE] key. The display for reconfirmation to clear is shown. 3. Select YES or NO to clear the counter. YES: Clear NO: Not clear

(Counter to be cleared)

Display	Content
MACHINE JAM	Machine JAM counter
RSPF	Automatic document feeder JAM counter
TROUBLE	Trouble counter


TEST SIMULATION NO.24-01

JAM/TROUBLE COUNTER DATA CLEAR

ARE YOU SURE?

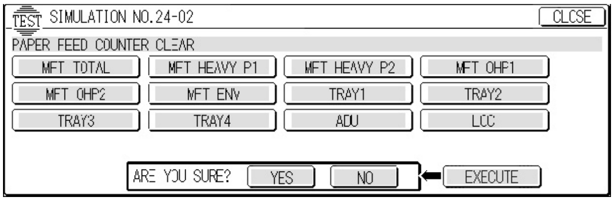
24 -2

Purpose	Data clear
Function (Purpose)	Used to clear the data of the number of uses (print quantity) of each paper feed section.
Section	Paper feed
Item	Counter Paper feed unit
Operation/ Procedure	1. Select the counter to be cleared. (The selected key highlighted.) 2. Press the [EXECUTE] key. The display for reconfirmation to clear is shown. 3. Select YES or NO to clear the counter. YES: Clear NO: Not clear

After completion of maintenance, the following counters are cleared.

(Counters to be cleared)

MFT TOTAL	Manual paper feed (total) counter
MFT HEAVY P1	Manual paper feed (heavy paper 1) counter
MFT HEAVY P2	Manual paper feed (heavy paper 2) counter
MFT OHP1	Manual paper feed (OHP1) counter
MFT OHP2	Manual paper feed (OHP2) counter
MFT ENV	Manual paper feed (Envelope) counter
TRAY1	Tray 1 counter
TRAY2	Tray 2 counter
TRAY3	Tray 3 counter
TRAY4	Tray 4 counter
ADU	Duplex unit counter
LCC	Large capacity tray counter


TEST SIMULATION NO.24-02

PAPER FEED COUNTER CLEAR

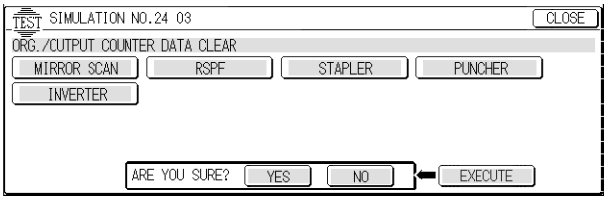
ARE YOU SURE?

24 -3

Purpose	Data clear
Function (Purpose)	Used to clear the number of scan (read) of the staple and the document feed unit.
Section	Transport/Finisher
Item	Counter
Operation/ Procedure	1. Select the counter to be cleared. (The selected key highlighted.) 2. Press the [EXECUTE] key. The display for reconfirmation to clear is shown. 3. Select YES or NO to clear the counter. YES: Clear NO: Not clear

(Counters to be cleared)

Display	Content
MIRROR SCAN	Scan counter
RSPF	Automatic document feeder counter
STAPLER	Staple counter
PUNCHER	Puncher counter
INVERTER	Inverter counter

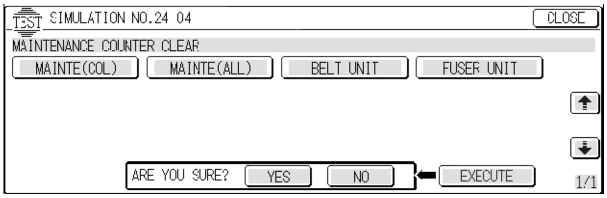

TEST SIMULATION NO.24 03
CLOSE
ORG./OUTPUT COUNTER DATA CLEAR
MIRROR SCAN
RSPF
STAPLER
PUNCHER
INVERTER
ARE YOU SURE?
YES
NO
EXECUTE

24 -4

Purpose	Data clear
Function (Purpose)	Used to reset the maintenance counter.
Item	Counter Maintenance
Operation/ Procedure	1. Press the [EXECUTE] key. The display for reconfirmation to clear is shown. 2. Select YES or NO to clear the counter. YES: Clear NO: Not clear

(Counters to be cleared)

MAINTE (COL)	Maintenance counter (Color)
MAINTE (ALL)	Maintenance counter (Total)
BELT UNIT	Transfer unit print counter
FUSER UNIT	Fusing unit print counter

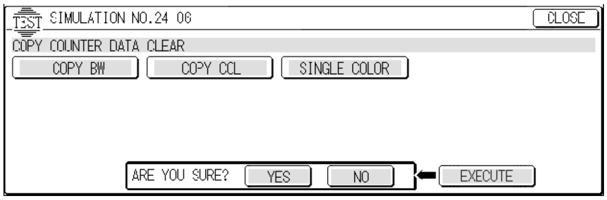

TEST SIMULATION NO.24 04
CLOSE
MAINTENANCE COUNTER CLEAR
MAINTE(COL)
MAINTE(ALL)
BELT UNIT
FUSER UNIT
ARE YOU SURE?
YES
NO
EXECUTE
1/1

24 -6

Purpose	Data clear
Function (Purpose)	Used to clear the copy counters.
Item	Counter
Operation/ Procedure	1. Select the counter to be cleared. 2. Press the [EXECUTE] key. The display for reconfirmation to clear is shown. 3. Select YES or NO to clear the counter. YES: Clear NO: Not clear

(Counters to be cleared)

Display	Content
COPY BW	Copier (B/W) counter
COPY COL	Copier (Color) counter
SINGLE COLOR	Single color


TEST SIMULATION NO.24 06
CLOSE
COPY COUNTER DATA CLEAR
COPY BW
COPY COL
SINGLE COLOR
ARE YOU SURE?
YES
NO
EXECUTE

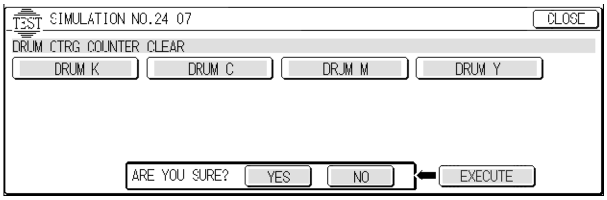
24 -7

Purpose	Data clear
Function (Purpose)	Used to clear the OPC drum (membrane decrease) correction counter. (This simulation is performed with the OPC drum is replaced.)
Section	Process (Photoconductor, developing, transfer, cleaning) Photoconductor
Item	Counter Photoconductor
Operation/ Procedure	1. Select the counter to be cleared. 2. Press the [EXECUTE] key. The display for reconfirmation to clear is shown. Select YES or NO to clear the counter. YES: Clear NO: Not clear

After replacement of the OPC drum, the following counters are cleared.

(Counters to be cleared)

Display	Content
DRUM CTRG K	Drum cartridge (K)
DRUM CTRG C	Drum cartridge (C)
DRUM CTRG M	Drum cartridge (M)
DRUM CTRG Y	Drum cartridge (Y)

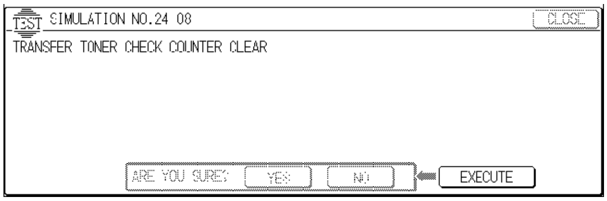

TEST SIMULATION NO.24 07
CLOSE
DRUM CTRG COUNTER CLEAR
DRUM K
DRUM C
DRUM M
DRUM Y
ARE YOU SURE?
YES
NO
EXECUTE

24 -8

Purpose	Data clear
Function (Purpose)	Used to clear the waste toner counter in the transfer section.
Section	Process (Photoconductor, developing, transfer, cleaning) Transfer
Item	Counter
Operation/ Procedure	In order to execute this simulation, the following conditions must be satisfied. Be sure to check them in advance. * The transfer unit is installed to the machine. * All the cabinet open/close detection switches are ON.

1. Press the [EXECUTE] key.
   The display for reconfirmation to clear is shown.
2. Select YES or NO to clear the counter.
   YES: Clear
   NO: Not clear

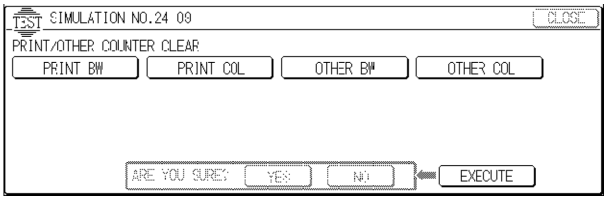
After removing waste toner from the transfer section, the counter is cleared.


TEST SIMULATION NO.24 08
CLOSE
TRANSFER TONER CHECK COUNTER CLEAR
ARE YOU SURE?
YES
NO
EXECUTE

24 -9

Purpose	Data clear
Function (Purpose)	Used to clear the printer mode counter and the self-print mode print counter. (After completion of maintenance, the counters are cleared.)
Section	Printer
Item	Counter Printer
Operation/ Procedure	1. Select the counter to be cleared. 2. Press the [EXECUTE] key. The display for reconfirmation to clear is shown. 3. Select YES or NO to clear the counter. YES: Clear NO: Not clear

PRINT BW	Printer mode print counter (B/W)
PRINT COL	Printer mode print counter (Color)
OTHER BW	Self print mode print counter (B/W)
OTHER COL	Self print mode print counter (Color)

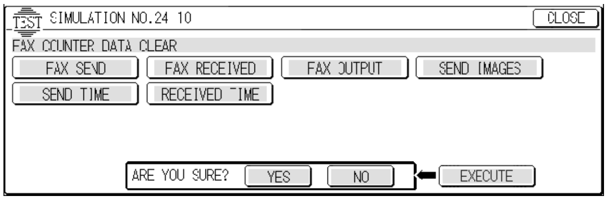

TEST
SIMULATION NO.24 09
CLOSE
PRINT/OTHER COUNTER CLEAR
PRINT BW
PRINT COL
OTHER BW
OTHER COL
ARE YOU SURE?
YES
NO
EXECUTE

24 -10

Purpose	Data clear
Function (Purpose)	Used to clear the FAX counter. (with FAX installed)
Section	FAX
Item	Counter
Operation/ Procedure	1. Select the counter to be cleared. 2. Press the [EXECUTE] key. The display for reconfirmation to clear is shown. 3. Select YES or NO to clear the counter. YES: Clear NO: Not clear

(Counters to be cleared)

Display	Content
FAX SEND	FAX send counter
FAX RECEIVED	FAX receive counter
FAX OUTPUT	FAX print number
SEND IMAGES	FAX send number counter
SEND TIIME	FAX send time
RECEIVE TIME	FAX receive time

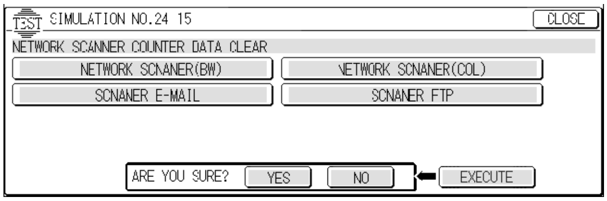

TEST
SIMULATION NO.24 10
CLOSE
FAX COUNTER DATA CLEAR
FAX SEND
FAX RECEIVED
FAX OUTPUT
SEND IMAGES
SEND TIME
RECEIVED TIME
ARE YOU SURE?
YES
NO
EXECUTE

24 -15

Purpose	Data clear
Function (Purpose)	Used to clear the network scanner counter.
Section	Scanner section
Item	Counter
Operation/ Procedure	1. Select the counter to be cleared. 2. Press the [EXECUTE] key. The display for reconfirmation to clear is shown. 3. Select YES or NO to clear the counter. YES: Clear NO: Not clear

(Counters to be cleared)

NETWORK SCANNER (BW)	Network scanner document scan quantity counter (B/W)
NETWORK SCANNER (COL)	Network scanner document scan quantity counter (Color)
SCANNER E-MAIL	Scanner e-mail send counter
SCANNER FTP	Scanner FTP send counter


TEST
SIMULATION NO.24 15
CLOSE
NETWORK SCANNER COUNTER DATA CLEAR
NETWORK SCNANER(BW)
NETWORK SCNANER(COL)
SCNANER E-MAIL
SCNANER FTP
ARE YOU SURE?
YES
NO
EXECUTE

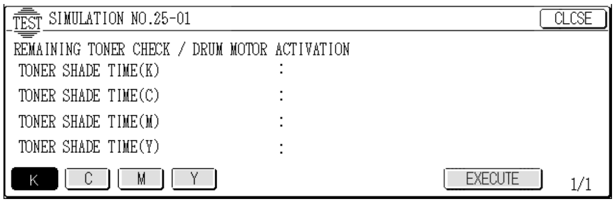
25

25 -1

Purpose	Operation test/check
Function (Purpose)	Used to check the operation of the process section (excluding the image process section) and the toner remaining quantity sensor. (The toner remaining quantity sensor output can be monitored.)
Section	Process (Photoconductor, developing, transfer, cleaning)
Item	Operation
Operation/ Procedure	1. Select the color to check the toner remaining quantity.

2. Press the [EXECUTE] key. The selected toner key is highlighted, and all the drum motors rotate (117m/s), and the specified toner remaining quantity sensor level is displayed. After 10min, the motors stop, and the [EXECUTE] key returns to the normal display.

When the [EXECUTE] key is pressed during rotation of the motors, the motors will stop and the [EXECUTE] key will return to the normal display.


TEST
SIMULATION NO.25-01
CLOSE
K
C
M
Y
EXECUTE
1/1

REMAINING TONER CHECK / DRUM MOTOR ACTIVATION
TONER SHADE TIME(K) :
TONER SHADE TIME(C) :
TONER SHADE TIME(M) :
TONER SHADE TIME(Y) :

26

26 -2

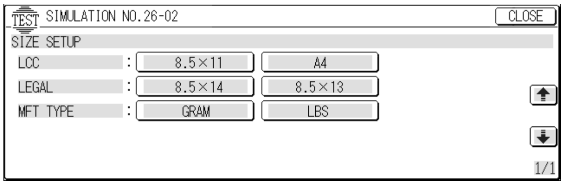
Purpose	Setting
Function (Purpose)	1. Used to set the paper size of the large capacity tray. (When the paper size is changed, the software setup must be changed accordingly with this simulation.) 2. Used to detect 8.5 " x 13" (INCH Series) paper or documents and to set the display mode. (All paper feed modes) 3. Used to set the display form of the paper kind in the manual paper feed mode.
Section	Paper feed
Item	Specifications
Operation/ Procedure	1. Used to set the paper size of the large capacity tray. 2. Used to set to allow 8.5" x 13" size paper to be treated as a selectable size.

3. Used to set the paper kind display mode in the manual paper feed mode.

* Documents or paper of 8.5" x 13" are treated as a selectable size.

(Selection item)

	Item	Set value	Content
Paper size setting	LCC	1	8.5 x 11
		2	A4
	LEGAL	0	8.5 x 14
		1	8.5 x 13
	MFT TYPE	0	Displayed in gram.
		1	Displayed in pound.



SIMULATION NO.26-02
SIZE SETUP
LCC : 8.5×11 A4
LEGAL : 8.5×14 8.5×13
MFT TYPE : GRAM LBS

26 -3

Purpose	Setting
Function (Purpose)	Used to set the auditor specification mode. Setting must be made according to the use conditions of the auditor.
Section	Auditor
Item	Specifications
Operation/ Procedure	Enter the code number corresponding to the auditor specification mode.

Mode	Content
[P10]	Built-in auditor mode
[AR-EC1]	Card counter mode (only Japan)
[MODE1]	Coin vendor mode 1
[MODE2]	Coin vendor mode 2
[MODE3]	Coin vendor mode 3

[Copy vendor mode]

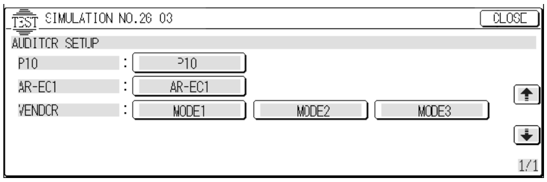
Diag setting	Specified number completed with money left	Lack of money during a copy job		Specified number completed with no money left
		BW/Color (with no money left)	Color (with money left)	
	Case 1	Case 2	Case 3	Case 4
26-3=3 MODE1	Operation 1	Operation 2	Operation 2	Operation 1
26-3=4 MODE2	Operation 1	Operation 1	Operation 2	Operation 1
26-3=5 MODE3	Operation 1	Operation 3	Operation 2	Operation 3

Operation 1: The set status remains until the auto clear set time has passed. (Default: 60sec Changeable with key operations.)

Operation 2: Auto clear is not made.

Operation 3: Setting is immediately cleared, and the display returns to the standby menu.

Case 1/Case 2 (with money left): B/W copy is allowed. If, however, charge money fro color copy is exhausted during a color copy job, when sufficient money for the job is supplied, only the color start key of the READY lamp lights up.



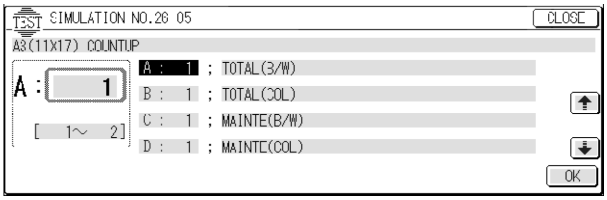
SIMULATION NO.26 03
AUDITOR SETUP
P10 : P10
AR-EC1 : AR-EC1
VENDOR : MODE1 MODE2 MODE3

26 -5

Purpose	Setting
Function (Purpose)	Used to set the count mode of the total counter and the maintenance counter.
Item	Specifications Counter
Operation/ Procedure	Used to set the single count-up or double count-up for the total counter, the maintenance counter, and the developer counter when printing is performed with A3, 11 x 17" paper.

1. Select the kind of the counter with the scroll key.
2. Enter "1" or "2" with the 10-key pad and press the [OK] key.

	Item	Content	Set range	Default
A	TOTAL(B/W)	Total counter (B/W)	1 – 2	2
B	TOTAL(COL)	Total counter (Color)	1 – 2	2
C	MAINTE(B/W)	Maintenance (B/W)	1 – 2	2
D	MAINTE(COL)	Maintenance (Color)	1 – 2	2



SIMULATION NO.26 05
A3(11X17) COUNTUP
A : 1
[1～ 2]
A : 1 ; TOTAL(B/W)
B : 1 ; TOTAL(COL)
C : 1 ; MAINTE(B/W)
D : 1 ; MAINTE(COL)

26 -6

Purpose	Setting
Function (Purpose)	Used to set the destination specifications (paper, fixed copy magnification ratios, image (process) correction, machine operation in case of an error, etc.).
Item	Specifications Destination
Operation/ Procedure	The current destination is highlighted. Select a desired destination.

(Destinations to be selected)

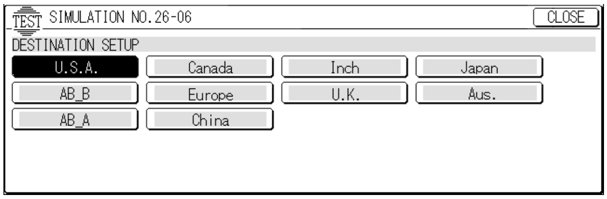
Destination	
U.S.A.	United States of America
Canada	Canada
Inch	Inch series, other destinations
Japan	Japan
AB_B	AB series (B5 detection), other destinations
Europe	Europe
U.K.	United Kingdom
Aus.	Australia
AB_A	AB series (A5 detection), other destinations
China	China

SIM No.	Content	U.S.A	Canada	Inch	Japan	AB_B
SIM26-02	Manual feed paper kind display	1 (LBS)	1 (LBS)	1 (LBS)	0 (GRAM)	0 (GRAM)
SIM26-02	Legal set value	0 (8.5 x 14)	0 (8.5 x 14)	0 (8.5 x 14)	0 (8.5 x 14)	0 (8.5 x 14)
SIM26-41	Center binding AMS setting	0 (No support)	0 (No support)	0 (No support)	0 (No support)	0 (No support)
SIM26-50A	Black-White reverse key display	1 (Display enabled)	1 (Display enabled)	1 (Display enabled)	1 (Display enabled)	1 (Display enabled)
SIM26-50C	Scanner reading send timer set key	1 (Display enabled)	1 (Display enabled)	0 (Display disabled)	0 (Display disabled)	0 (Display disabled)
SIM26-52	White paper exit count-up setting	1 (Counts up.)	1 (Counts up.)	1 (Counts up.)	0 (No counts)	1 (Counts up.)
SIM26-69	Setting of specifications when toner cartridge life near end	0 (CONTINUE)	0 (CONTINUE)	0 (CONTINUE)	0 (CONTINUE)	0 (CONTINUE)
SIM26-72	High image quality mode disable/ enable setting	1 (Display enabled)	1 (Display enabled)	1 (Display enabled)	1 (Display enabled)	1 (Display enabled)
SIM46-19	B/W auto exposure mode setting	2 (EX Japan)	2 (EX Japan)	2 (EX Japan)	1 (Japan)	2 (EX Japan)
SIM46-33C	Filter setting of color automatic document recognition	2 (EX Japan)	2 (EX Japan)	2 (EX Japan)	1 (Japan)	2 (EX Japan)
SIM21-1	Transfer unit maintenance cycle	100K	100K	100K	100K	100K
SIM21-1	Fusing unit maintenance cycle	100K	100K	100K	100K	100K
SIM67-29A	4bit screen photo mode	0 (Photo 1)	0 (Photo 1)	0 (Photo 1)	0 (Photo 1)	0 (Photo 1)
SIM67-29B	4bit screen graphic mode	0 (Graphic 1)	0 (Graphic 1)	0 (Graphic 1)	0 (Graphic 1)	0 (Graphic 1)
SIM43-01 A	TH1 control temperature when ready standby	150	150	150	150	150
SIM43-01 B	TH2 control temperature when ready standby	135	135	135	135	135
SIM43-01 E	Normal paper TH1 set value	145	145	145	145	145
SIM43-01 F	Normal paper TH2 set value	135	135	135	135	135
SIM43-01 G	Previous rotation start temperature in warm-up	135	135	135	135	135
SIM43-01 H	Fusing motor rotation complete temperature during warm-up	135	135	135	135	135
SIM48-06 I	Fusing motor correction value (Normal paper large size: length 420mm or above)	85	85	85	85	85
FAX	FAX destination	181 (USA)	181 (USA)	181 (USA)	0 (JAPAN)	254 (TW)
Key operation	Language setting	0 x 50	0 x 50	0 x 5c	0 x 51	0 x 5c
Key operation	Tray 1 size setting	1 (8.5 x 11)	1 (8.5 x 11)	1 (8.5 x 11)	2 (A4)	2 (A4)
Key operation	Tray 2 size setting	1 (8.5 x 11)	1 (8.5 x 11)	1 (8.5 x 11)	2 (A4)	2 (A4)
Key operation	Tray 3 size setting	1 (8.5 x 11)	1 (8.5 x 11)	1 (8.5 x 11)	2 (A4)	2 (A4)
Key operation	Tray 4 size setting	1 (8.5 x 11)	1 (8.5 x 11)	1 (8.5 x 11)	2 (A4)	2 (A4)
Key operation	LCC size setting	1 (8.5 x 11)	1 (8.5 x 11)	1 (8.5 x 11)	2 (A4)	2 (A4)
Key operation	Manual feed size setting	1 (8.5 x 11)	1 (8.5 x 11)	1 (8.5 x 11)	2 (A4)	2 (A4)
Key operation	Document detection setting	1 (INCH_1)	1 (INCH_1)	1 (INCH_1)	3 (AB_1)	3 (AB_1)
Key operation	Auto summer time setting	0 (Disable)	0 (Disable)	0 (Disable)	0 (Disable)	0 (Disable)
Key operation	Tray 1 special size	Special	Special	Special	Special	Special
Key operation	Tray 2 special size	Special	Special	Special	Special	Special
Key operation	Tray 3 special size	Special	Special	Special	Special	Special
Key operation	Tray 4 special size	Special	Special	Special	Special	Special
Key operation	A4 letter automatic switch	0 (OFF)	0 (OFF)	0 (OFF)	0 (OFF)	0 (OFF)
Key operation	Automatic copy mode display switch	1 (ON)	0 (OFF)	0 (OFF)	0 (OFF)	0 (OFF)
Key operation	Document feed unit high image quality mode setting	0 (300dpi)	0 (300dpi)	1 (600dpi)	1 (600dpi)	1 (600dpi)
Key operation	Copy mode offset (top tray)	(No offset)	(No offset)	(Offset provided)	(Offset provided)	(Offset provided)

SIM No.	Content	U.S.A	Canada	Inch	Japan	AB_B
Key operation	Scanner read send time setting	0 sec.	0 sec.	60 sec.	60 sec.	60 sec.
PRT environment setting	PCL symbol set	1 (Roman8)	1 (Roman8)	1 (Roman8)	36 (Win3.1J)	1 (Roman8)
PRT environment setting	PCL font	0 (Font No. 0)	0 (Font No. 0)	0 (Font No. 0)	81 (Font No. 81)	0 (Font No. 0)

SIM No.	Content	Europe	U.K.	Aus.	AB_A	China
SIM26-02	Manual feed paper kind display	0 (GRAM)	0 (GRAM)	0 (GRAM)	0 (GRAM)	0 (GRAM)
SIM26-02	Legal set value	0 (8.5x14)	0 (8.5x14)	1 (8.5x13)	0 (8.5x14)	0 (8.5x14)
SIM26-41	Center binding AMS setting	1 (AMS setting)	1 (AMS setting)	0 (Disable)	0 (Disable)	0 (Disable)
SIM26-50A	Black-White reverse key display	1 (Display enabled)	1 (Display disabled)	1 (Display enabled)	1 (Display enabled)	1 (Display enabled)
SIM26-50C	Scanner reading send timer set key	0 (Display disabled)	0 (Display disabled)	0 (Display disabled)	0 (Display disabled)	0 (Display disabled)
SIM26-52	B/W paper exit count-up setting	1 (Counts up.)	1 (Counts up.)	0 (No counts)	1 (Counts up.)	1 (Counts up.)
SIM26-69	Setting of specifications when toner cartridge life near end	0 (CONTINUE)	1 (STOP)	0 (CONTINUE)	0 (CONTINUE)	0 (CONTINUE)
SIM26-72	High image quality mode disable/enable setting	1 (Display enabled)	1 (Display enabled)	1 (Display enabled)	1 (Display enabled)	1 (Display enabled)
SIM46-19	B/W auto exposure mode setting	2 (EX Japan)	2 (EX Japan)	2 (EX Japan)	2 (EX Japan)	2 (EX Japan)
SIM46-33C	Filter setting of color automatic document recognition	2 (EX Japan)	2 (EX Japan)	2 (EX Japan)	2 (EX Japan)	2 (EX Japan)
SIM21-1	Transfer unit maintenance cycle	100K	100K	100K	100K	100K
SIM21-1	Fusing unit maintenance cycle	100K	100K	100K	100K	100K
SIM67-29A	4bit screen photo mode	0 (Photo 1)	0 (Photo 1)	0 (Photo 1)	0 (Photo 1)	0 (Photo 1)
SIM67-29B	4bit screen graphic mode	0 (Graphic 1)	0 (Graphic 1)	0 (Graphic 1)	0 (Graphic 1)	0 (Graphic 1)
SIM43-01 A	TH1 control temperature when ready standby	150	150	150	150	150
SIM43-01 B	TH2 control temperature when ready standby	135	135	135	135	135
SIM43-01 E	Normal paper TH1 set value	145	145	145	145	145
SIM43-01 F	Normal paper TH2 set value	135	135	135	135	135
SIM43-01 G	Previous rotation start temperature in warm-up	135	135	135	135	135
SIM43-01 H	Fusing motor rotation complete temperature during warm-up	135	135	135	135	135
SIM48-06 I	Fusing motor correction value (Normal paper large size: length 420mm or above)	85	85	85	85	85
FAX	FAX destination	4 (GERMAN)	180 (ENGLAND)	9 (AUSTRALIA)	181 (USA)	38 (CHINA)
Key operation	Language setting	0x5c	0x5c	0x5c	0x5c	0x5b
Key operation	Tray 1 size setting	2 (A4)	2 (A4)	2 (A4)	2 (A4)	2 (A4)
Key operation	Tray 2 size setting	2 (A4)	2 (A4)	2 (A4)	2 (A4)	2 (A4)
Key operation	Tray 3 size setting	2 (A4)	2 (A4)	2 (A4)	2 (A4)	2 (A4)
Key operation	Tray 4 size setting	2 (A4)	2 (A4)	2 (A4)	2 (A4)	2 (A4)
Key operation	LCC size detection	2 (A4)	2 (A4)	2 (A4)	2 (A4)	2 (A4)
Key operation	Manual fee size setting	2 (A4)	2 (A4)	2 (A4)	2 (A4)	2 (A4)
Key operation	Document detection setting	3 (AB_1)	3 (AB_1)	4 (AB_2)	3 (AB_1)	3 (AB_1)
Key operation	Auto summer time setting	1 (Enable)	0 (Disable)	1 (Enable)	0 (Disable)	0 (Disable)
Key operation	Tray 1 special size	Special	Special	Special	Special	Special
Key operation	Tray 2 special size	Special	Special	Special	Special	Special
Key operation	Tray 3 special size	Special	Special	Special	Special	Special
Key operation	Tray 4 special size	Special	Special	Special	Special	Special
Key operation	A4 letter automatic switch	1 (ON)	1 (ON)	0 (OFF)	0 (OFF)	0 (OFF)
Key operation	Automatic copy mode display switch	0 (OFF)	0 (OFF)	0 (OFF)	0 (OFF)	0 (OFF)
Key operation	Document feed unit high image quality mode setting	0 (300dpi)	0 (300dpi)	0 (600dpi)	0 (600dpi)	0 (600dpi)
Key operation	Copy mode offset (top tray)	(No offset)	(No offset)	(Offset provided)	(Offset provided)	(Offset provided)
Key operation	Scanner read send time setting	60 sec.	60 sec.	60 sec.	60 sec.	60 sec.
PRT environment setting	PCL symbol set	1 (Roman8)	1 (Roman8)	1 (Roman8)	1 (Roman8)	1 (Roman8)
PRT environment setting	PCL font	0 (Font No. 0)	0 (Font No. 0)	0 (Font No. 0)	0 (Font No. 0)	0 (Font No. 0)

Language setup: 0x50 American English, 0x51 Japanese, 0x5c Chinese, 0x5c English


SIMULATION NO.26-06

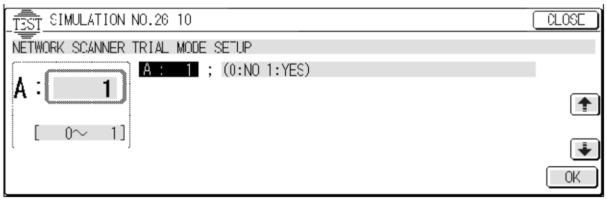
DESTINATION SETUP

26 -10

Purpose	Setting
Function (Purpose)	Used to set the trial mode of the network scanner.
Section	Scanner
Item	Specifications
Operation/ Procedure	1. Set ON/OFF of the trial mode with the 10-key pad, and press the [OK] key. ∗ The B/W start key or the color start key can be used instead of the [OK] key in the above procedure.

(Trial mode setting)

Item	Content	Set range	Default
A	Trial mode setting	0: NO 1: YES	0


SIMULATION NO.26 10

NETWORK SCANNER TRIAL MODE SETUP

A : 1 ; (0:NO 1:YES)

A : 1

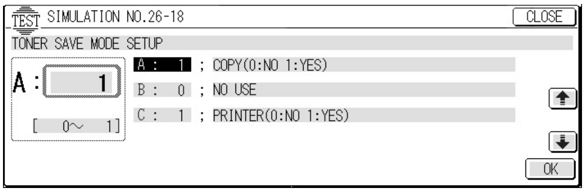
[0~ 1]

26 -18

Purpose	Setting
Function (Purpose)	Used to set YES/NO of toner save operation. (This simulation is Enable only for Japan and UK versions. It depends on SIM 26-6 (Destination) setting. For the other destinations, the same setting can be made by the user program P22. (Effective only in the monochrome copy mode)
Item	Specifications Operation mode (Common)
Operation/ Procedure	Enter the code number corresponding to the condition (the toner save YES/NO) with the 10-key and press the [OK] Key.

(Toner save mode setting)

	Item	Content	Set range	Default
A	COPY (0:NO 1:YES)	Copy mode toner save mode inhibit	0:NO 1:YES	0
B	NO USE	–	–	–
C	PRINTER (0:NO 1:YES)	Printer mode toner save mode inhibit	0:NO 1:YES	0


SIMULATION NO.26-18

TONER SAVE MODE SETUP

A : 1 ; COPY(0:NO 1:YES)

B : 0 ; NO USE

C : 1 ; PRINTER(0:NO 1:YES)

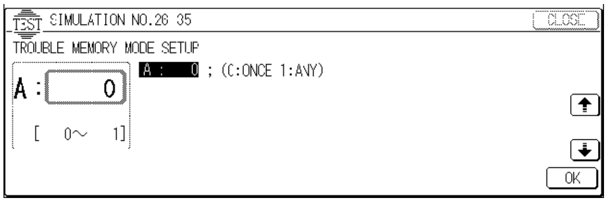
A : 1

[0~ 1]

26 -35

Purpose	Setting
Function (Purpose)	Used to set whether the trouble history display by SIM 22-4 is displayed as one trouble or as the accumulated number of continuous troubles when two or more troubles of same kind occur continuously.
Item	Specifications
Operation/ Procedure	Used to set whether the trouble history display by SIM 22-4 is displayed as one trouble or as the accumulated number of continuous troubles when two or more troubles of same kind occur continuously. 1. Select the number corresponding to the display mode with the 10-key and press the [OK] key.

Item	Set value	Default
The trouble history display by SIM 22-4 is displayed as it is when two or more troubles occur continuously.	1	0
The trouble history display by SIM 22-4 is displayed as one trouble when two or more troubles occur continuously.	0	


SIMULATION NO.26 35

TROUBLE MEMORY MODE SETUP

A : 0 ; (0:ONCE 1:ANY)

A : 0

[0~ 1]

26 -38

Purpose	Setting
Function (Purpose)	Used to set "Continue/Stop" of printing when the maintenance timing (replacement timing of each consumable part) is reached.
Item	Specifications
Operation/ Procedure	When the maintenance timing (replacement timing of each consumable part) is reached, set "Continue/ Stop" of printing by entering the code number with the 10-key, referring to the table below. Then press the [OK] key.

[Target item]

∗ Maintenance preset counter (Depending on the set value of SIM21-1.)

∗ Consumable part replacement timing

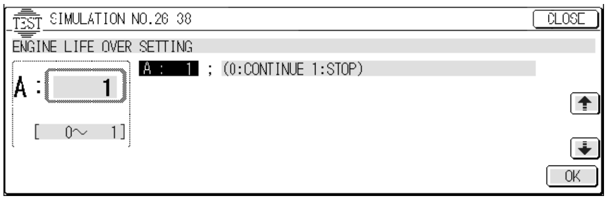
Transfer belt (Depending on the set value of SIM21-1.)

Fusing unit (Depending on the set value of SIM21-1.)

OPC drum

When the toner cartridge is emptied, printing is stopped regardless of this setup.

Item		Content	Set value		Default
A	(0:CONTINUE 1:STOP)	Used to set "Continue/Stop" of printing when the maintenance timing (replacement timing of each consumable part) is reached.	0	Continues printing.	0
			1	Stops printing.	



SIMULATION NO.26 38

ENGINE LIFE OVER SETTING

A : 1 ; (0:CONTINUE 1:STOP)

A : 1

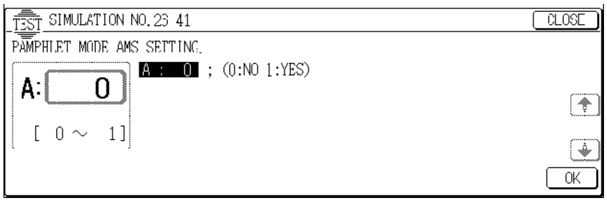
[0～ 1]

26 -41

Purpose	Setting
Function (Purpose)	Used to set Enable/Disable of AMS operation in the center-binding mode.
Item	Specifications
Operation/ Procedure	Enter the corresponding code of Enable/Disable of AMS operation in the center-binding mode with the 10-key pad, and press the [OK] key. * The B/W start key or the color start key cans be used instead of the [OK] key in the above procedure.

(Setting of AMS in the center binding mode)

Item		Content	Set value		Default
A	(0:NO 1:YES)	Setting of AMS operation in the center binding mode	0	AMS operation is disabled.	1: Europe and UK 0: Others
			1	AMS operation is enabled.	



SIMULATION NO.23 41

PAMPHLET MODE AMS SETTING

A : 0 ; (0:NO 1:YES)

A: 0

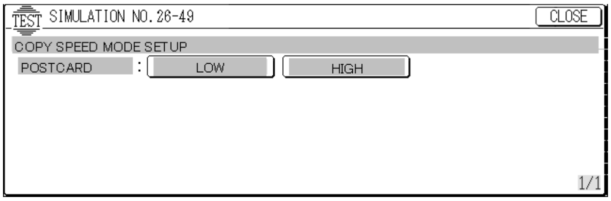
[0 ～ 1]

26 -49

Purpose	Setting
Function (Purpose)	Used to set the copy speed mode.
Item	Specifications Operation mode
Operation/ Procedure	1. The highlighted key is the currently set key. 2. When each key is pressed, the selected set value is saved in the EEPROM, and the pressed key is highlighted. * Each set item has one content of setting.

(Set value)

Item	Set value	Content	Default
POSTCARD	LOW	Postcard copy speed: 6 CPM	LOW
	HIGH	Postcard copy speed: 13 CPM	



SIMULATION NO.26-49

COPY SPEED MODE SETUP

POSTCARD : LOW HIGH

26 -50

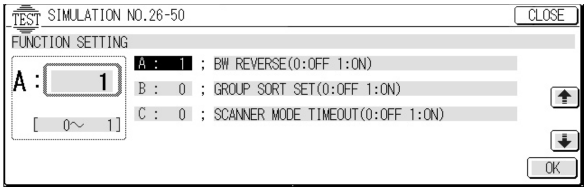
Purpose	Setting
Function (Purpose)	Used to set Black-White reverse, group rounding, and scanner send time display.
Item	Specifications Operation mode
Operation/ Procedure	1. Select an item with the scroll key. 2. Enter the set value with the 10-key, and press the [OK] key. 3. Press the B/W start key or the color start key to save the set value in the EEPROM.

(Items to be selected)

Item		Content	Set range	Default
A	(0: Display disabled 1: Display enabled)	B/W reverse disable/enable setting	0 – 1	UK: Disable Other: Enable
B	(0: Group rounding allowed 1: Group rounding inhibited)	Group rounding setting	0 – 1	0
C	(0: Display disabled (1: Display enabled)	Scanner mode send time display setting	0 – 1	USA, Canada: Enable

* When item C is set to 1 (display enable), the scanner send time is set to 0 sec for USA and Canada in connection with the destination, or to 60 sec for the other destinations. When set to 0 (Display enable), the scanner send time is set to 60 sec.

	0 (Display disabled)	1 (Display enabled)
USA & Canada	Send time 60sec	Send time 0sec
Other than USA & Canada	Send time 60sec	Send time 60sec



SIMULATION NO.26-50

FUNCTION SETTING

A : 1 ; BW REVERSE(0:OFF 1:ON)

B : 0 ; GROUP SORT SET(0:OFF 1:ON)

C : 0 ; SCANNER MODE TIMEOUT(0:OFF 1:ON)

A : 1

[0～ 1]

26 -52

Purpose	Setting
Function (Purpose)	Used to set YES/NO of count up of non-copy paper (cover or insertion paper).
Item	Specifications Operation mode
Operation/ Procedure	1. Enter the set value corresponding to the operation mode with the 10-key. 2. Press the [OK] key. * The B/W start key or the color start key can be used instead of the [OK] key in the above procedure.

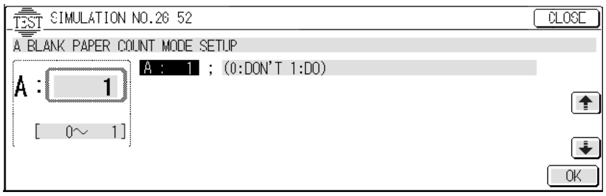
(B/W count up setting)

Item		Content	Set value		Default
A	(0:DON'T 1:DO)	Non-copy paper count-up setting	0	Not count up.	1: Other countries 0: Japan/ Australia
			1	Counts up.	

Non-print paper (white paper)

No-print-on-cover paper (Copy/Printer)

No-print-on-OHP-insertion paper (Copy/Printer)



SIMULATION NO.26 52

A BLANK PAPER COUNT MODE SETUP

A : 1 ; (0:DON'T 1:DO)

A : 1

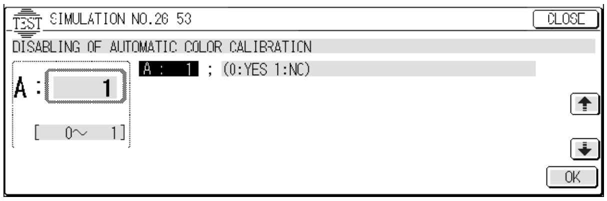
[0～ 1]

26 -53

Purpose	Setting
Function (Purpose)	Used by the user to set Enable/Disable auto color calibration (auto adjustment of color balance and density)
Item	Specifications Operation mode
Operation/ Procedure	1. Select Enable or Disable with the 10-key. Disable 0: YES Enable 1: NO 2. Press the [OK] key.

Set value	Content	Default
0	Disable auto color calibration (automatic adjustment of copy color balance and density)	1
1	Enable auto color calibration (automatic adjustment of copy color balance and density)	

When "Disable" is selected, the user program does not show the menu of the user auto color calibration (automatic adjustment of copy color balance and density).



SIMULATION NO.26 53

DISABLING OF AUTOMATIC COLOR CALIBRATION

A : 1 ; (0:YES 1:NO)

A : 1

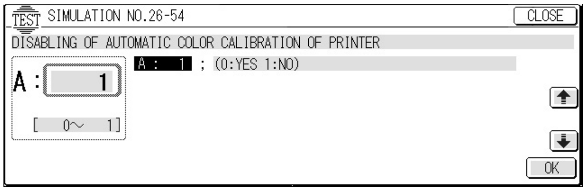
[0~ 1]

26 -54

Purpose	Setting
Function (Purpose)	Used to set enable/disable of auto color calibration for the printer.
Item	Specifications Operation mode
Operation/ Procedure	1. Select Enable or Disable with the 10-key. Disable 0: YES Enable 1: NO 2. Press the [OK] key.

Set value	Content	Default
0	Disable auto color calibration (automatic adjustment of printer color balance and density)	1
1	Enable auto color calibration (automatic adjustment of printer color balance and density)	

1: When set to enable, the easy calibration, test print, and color balance cannot be performed in the color adjustment of printer setting of key operation.



SIMULATION NO.26-54

DISABLING OF AUTOMATIC COLOR CALIBRATION OF PRINTER

A : 1 ; (0:YES 1:NO)

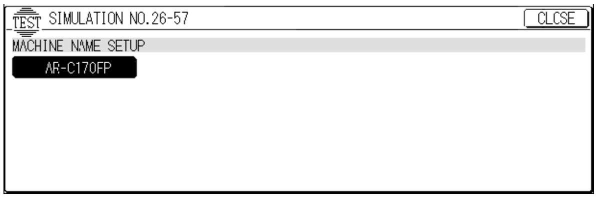
A : 1

[0~ 1]

26 -57

Purpose	Setting
Function (Purpose)	Used to set the model name for use as the status information.
Item	Specifications
Operation/ Procedure	The current model name (AR-C170M) is highlighted. * There is only one model name, and no selection is allowed.

Model	
AR-C170M	Copier/printer model



SIMULATION NO.26-57

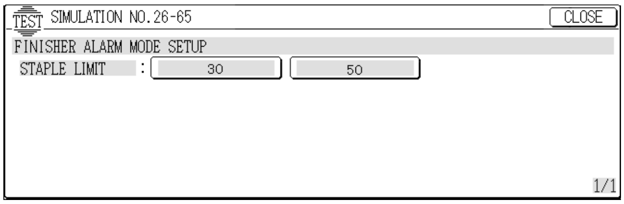
MACHINE NAME SETUP

AR-C170FP

26 -65

Purpose	Setting
Function (Purpose)	Used to set the finisher alarm mode.
Item	Specifications
Operation/ Procedure	Press the key which shows the staple limit quantity. The entered number is set and the pressed key is highlighted.

Item	Content	Set value		Default
STAPLE LIMIT	Staple limit quantity	30	Staple limit quantity: 30	30
		50	Staple limit quantity: 50	



SIMULATION NO.26-65

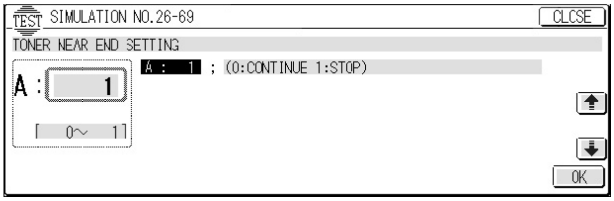
FINISHER ALARM MODE SETUP

STAPLE LIMIT : 30 50

26 -69

Purpose	Setting
Function (Purpose)	Used to set the operation specifications in case of toner cartridge life near end.
Item	Specifications
Operation/ Procedure	1. Enter the value corresponding to the operation specification by the 10-key, and press [OK] key.

Item		Content	Set value		Default
A	0: CONTINUE 1: STOP	Used to set whether print/ copy is enabled or not when the toner cartridge life reaches the near end.	1	Print/copy is inhibited when the toner cartridge life reaches the near end.	1: UK
			0	Print/copy is enabled until the toner cartridge life reaches the end.	0: Other than UK



SIMULATION NO.26-69

TONER NEAR END SETTING

A : 1 ; (0:CONTINUE 1:STOP)

A : 1

[0~ 1]

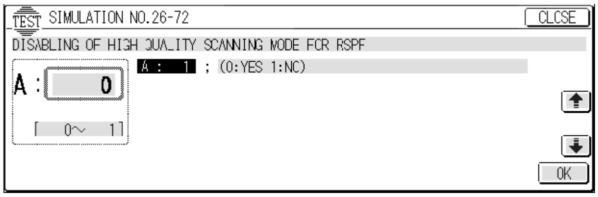
26 -72

Purpose	Setting
Function (Purpose)	Used to set disable/enable of the high image quality mode in BW copy.
Item	Specifications Operation mode
Operation/ Procedure	1. Enter the set value with the 10-key, and press the [OK] key.

* When set to 1 (Enable), the check box of "Black/White copy document feeder unit high image quality mode" is displayed in the key operation of [Function Setting], and setting is allowed.
When a check is made in the check box, the operation is made in the high image quality mode (600 dpi) in Black/White copy with the document feeder unit.

(Set value)

Item		Content	Set range	Default
A	(0:YES 1:NO)	High image quality mode disable/ enable setting	0 – 1	1: Enabled



SIMULATION NO.26-72

DISABLING OF HIGH QUALITY SCANNING MODE FOR RSPF

A : 1 ; (0:YES 1:NO)

A : 0

[0~ 1]

27

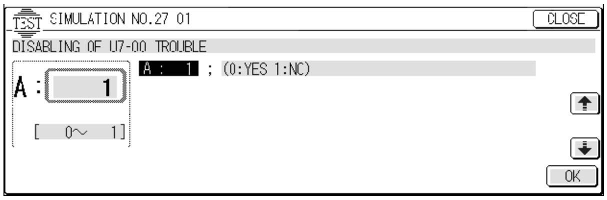
27 -1

Purpose	Operation test/check
Function (Purpose)	Used to set the specifications for operations in case of communication trouble between the host computer and MODEM (machine side). (When communication trouble occurs between the host computer MODEM and the machine, the self diag display (U7-00) is printed and setting for inhibition of print or not is made.)
Section	Communication (RIC/MODEM)
Item	Specifications Operation mode (Common)
Operation/ Procedure	Enter the code number corresponding to the operation mode with the 10-key and press the [OK] key. Used to set Enable/Disable of U7-00 trouble detection.

Set value	Set content	Default
0	U7-00 trouble detection is made. (Default)	0
1	U7-00 trouble detection is not made.	

0: Though a communication trouble occurs between the host computer and the MODEM (machine side), the machine is not affected.

1: When a communication trouble occurs between the host computer and the MODEM (machine side), the self diag display (U7-00) is displayed.



SIMULATION NO.27 01

DISABLING OF U7-00 TROUBLE

A : 1 ; (0:YES 1:NO)

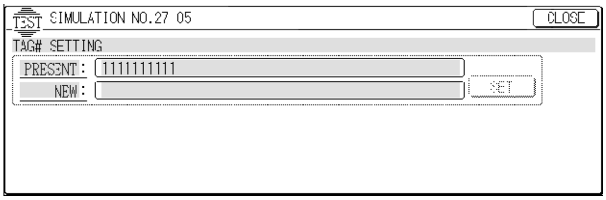
A : 1

[0~ 1]

27 -5

Purpose	Setting
Function (Purpose)	Used to enter the machine tag No. (This function allows to check the tag No. of the machine with the host computer.)
Section	Communication (RIC/MODEM)
Item	Data User data
Operation/ Procedure	1. When entering the tag No. newly or changing the tag No., enter the value (max. 8 digits) with the 10-key. The entered number is displayed in the column of "NEW"

2. Press the [SET] key. The new tag No. entered in procedure 1 is set. It is advisable to enter the machine's serial No. for machine management and servicing.



SIMULATION NO.27 05

TAG# SETTING

PRESENT : 1111111111

NEW :

Note: To perform this setting, the host computer and the machine must be connected through MODEM.

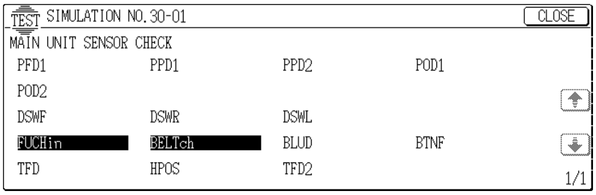
30

30 -1

Purpose	Operation test/check
Function (Purpose)	Used to check the operation of sensors and detectors in the paper feed, paper transport, paper exit sections and the related circuits.
Item	Operation
Operation/ Procedure	The active sensors and detectors are highlighted.

(Sensors to be checked)

Sensor name	Content
PFD1	Paper feed detection 1 (Tray 1)
PPD1	Transport detection 1
PPD2	Transport detection 2
POD1	Paper exit detection 1
POD2	Paper exit detection 2 (Top tray paper exit)
DSWF	Front door switch
DSWR	Right door switch
DSWL	Left door switch
FUCHin	Fusing installation detection
BELTch	Belt unit installation detection
BLUD	Belt unit upper limit detection
BTNF	Belt waste toner full detection
TFD	Side tray paper full detection
HPOS	Shifter home position detection
TFD2	Top tray paper full detection

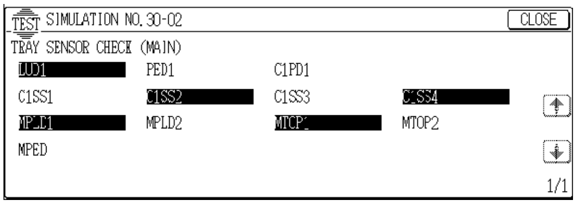

TEST SIMULATION NO.30-01
CLOSE
MAIN UNIT SENSOR CHECK
PFD1
PPD1
PPD2
POD1
POD2
DSWF
DSWR
DSWL
FUCHin
BELTch
BLUD
BTNF
TFD
HPOS
TFD2
1/1

30 -2

Purpose	Operation test/check
Function (Purpose)	Used to check the operation of sensors and detectors in the paper feed section and the related circuits. (The operation of the paper feed sensors and detectors can be monitored with the LCD display.)
Section	Paper feed
Item	Operation
Operation/ Procedure	The active sensors and detectors are highlighted.

(Sensors to be checked)

Sensor name	Content
LUD1	Paper feed tray upper limit detection (Tray 1)
PED1	Paper feed tray paper empty detection (Tray 1)
C1PD1	Paper feed tray remaining paper quantity detection (Tray 1)
C1SS1	Paper feed tray size detection 1 (Tray 1)
C1SS2	Paper feed tray size detection 2 (Tray 1)
C1SS3	Paper feed tray size detection 3 (Tray 1)
C1SS4	Paper feed tray size detection 4 (Tray 1)
MPLD1	Manual feed size length detection 1
MPLD2	Manual feed size length detection 2
MTOP1	Manual feed tray pull-out detection 1
MTOP2	Manual feed tray pull-out detection 2
MPED	Manual feed tray paper empty detection


TEST SIMULATION NO.30-02
CLOSE
TRAY SENSOR CHECK (MAIN)
LUD1
PED1
C1PD1
C1SS1
C1SS2
C1SS3
C1SS4
MPLD1
MPLD2
MTOP1
MTOP2
MPED
1/1

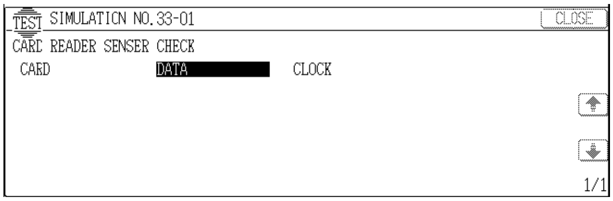
33

33 -1

Purpose	Operation test/check
Function (Purpose)	Used to check the operation of the card reader and the sensors and the related circuits. (The card reader sensor operation can be monitored with the LCD display.)
Section	Others
Item	Operation
Operation/ Procedure	Active/Inactive of the card reader is displayed.

(Sensors to be checked)

Sensor name	Content
CARD	Card insertion detection
DATA	Card number signal detection
CLOCK	Reference clock signal detection

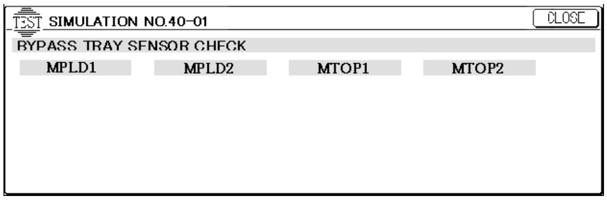

TEST SIMULATION NO.33-01
CLOSE
CARD READER SENSER CHECK
CARD
DATA
CLOCK
1/1

40

40 -1

Purpose	Operation test/check
Function (Purpose)	Used to check the operation of the manual feed tray paper size detector and the related circuit. (The operation of the manual feed tray paper size detector can be monitored with the LCD display.)
Section	Paper feed
Item	Operation
Operation/ Procedure	The active sensors and detectors are highlighted. Press the [CLOSE] key to terminate the simulation.

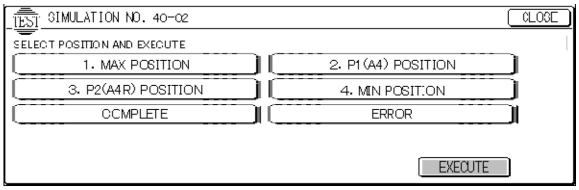
MPLD1	Manual feed size length detection 1
MPLD2	Manual feed size length detection 2
MTOP1	Manual feed tray pull-put detection 1
MTOP2	Manual feed tray pull-out detection 2


TEST SIMULATION NO.40-01
CLOSE
BYPASS TRAY SENSOR CHECK
MPLD1
MPLD2
MTOP1
MTOP2

40 -2

Purpose	Adjustment
Function (Purpose)	Used to adjust the manual feed tray paper width detector detection level.
Section	Paper feed
Item	Operation
Operation/ Procedure	1. Set the manual paper feed guide to the maximum size.

2. Press the [EXECUTE] key. The [EXECUTE] key is highlighted then it returns to the normal display. The manual paper feed guide max. width position detection level is recognized.
3. Set the manual paper feed guide to A4 (11 x 8.5") size.
4. Press the [EXECUTE] key. The key is highlighted then it returns to the normal display. The manual paper feed guide A4 (11 x 8.5") detection level is recognized.
5. Set the manual paper feed guide to A4R (11 x 8.5R) size.
6. Press the [EXECUTE] key. The key is highlighted then it returns to the normal display. The manual paper feed guide A4 R (11 x 8.5"R) detection level is recognized.
7. Set the manual paper feed guide to the minimum size.
8. Press the [EXECUTE] key. The key is highlighted then it returns to the normal display. The manual paper feed guide minimum size detection level is recognized.
   If the above operation is not performed properly, the ERROR display is highlighted. If performed properly, the above data is stored and the COMPLETE is highlighted.


SIMULATION NO. 40-02

SELECT POSITION AND EXECUTE

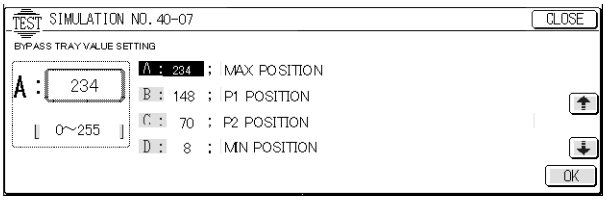
40 -7

Purpose	Setting
Function (Purpose)	Used to enter the adjustment value of the manual paper feed tray paper width detector detection level. (Setting)
Section	Paper feed
Item	Specifications
Operation/ Procedure	1. Select the item (setting) to be entered with the scroll key. 2. Enter the adjustment value with the 10-key pad. 3. Press the [OK] key.

* This simulation is not normally used. Adjustment is made with SIM 40-02.

(Set range)

Item		Set range	Default
A	MAX POSITION	0 – 255	241
B	P1 POSITION	0 – 255	231
C	P2 POSITION	0 – 255	140
D	MIN POSITION	0 – 255	19


SIMULATION NO. 40-07

BYPASS TRAY VALUE SETTING

A : 234

[0~255]

A : 234 ; MAX POSITION
B : 148 ; P1 POSITION
C : 70 ; P2 POSITION
D : 8 ; MIN POSITION

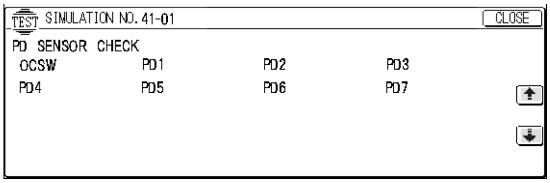
41

41 -1

Purpose	Operation test/check
Function (Purpose)	Used to check the operation of the document size sensor and the related circuit. (The operation of the document size sensor can be monitored with the LCD display.) Sensor ON/OFF check
Section	Others
Item	Operation
Operation/ Procedure	The active sensors and detectors are highlighted.

(Sensors to be detected)

OCSW	OC cover open/close detection	Open: Highlighted, Close: Normal
PD1	Document sensor 1	No document (not detected): Normal Document loaded (detected): Highlighted
PD2	Document sensor 2	
PD3	Document sensor 3	
PD4	Document sensor 4	
PD5	Document sensor 5	
PD6	Document sensor 6	
PD7	Document sensor 7	

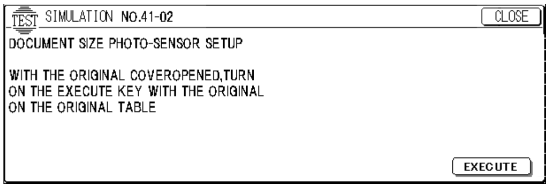

SIMULATION NO. 41-01

PD SENSOR CHECK

41 -2

Purpose	Adjustment
Function (Purpose)	Used to adjust the document size sensor detection level.
Section	Others
Item	Operation
Operation/ Procedure	1. Open the document table, and press the [EXECUTE] key without document on the document table. The sensor level setting with no document on the table is performed.

2. Set an A3 paper (11" x 17") and press the [EXECUTE] key. The sensor level setting with document is performed.
3. The message of completion of the adjustment is displayed.


SIMULATION NO.41-02

DOCUMENT SIZE PHOTO-SENSOR SETUP

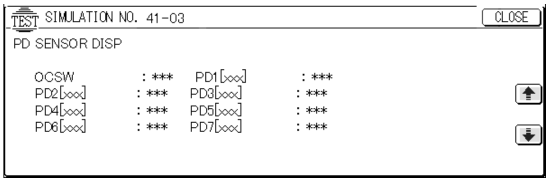
WITH THE ORIGINAL COVEROPENED,TURN
ON THE EXECUTE KEY WITH THE ORIGINAL
ON THE ORIGINAL TABLE

41 -3

Purpose	Operation test/check
Function (Purpose)	Used to check the operation of the document size sensor and the related circuit. (The document size sensor output level can be monitored with the LCD display.) Current sensor (A/D) value
Section	Others
Item	Operation
Operation/ Procedure	The detection output level of each sensor (PD1 ~ PD7) is displayed in real time.

* The value in [ ] shown at the right of each sensor name is the threshold value.

PD1 – PD7 light receiving (A/D value) and threshold value (A/D value) range is 1 – 255. The default of the threshold value is 128.


SIMULATION NO. 41-03

PD SENSOR DISP

OCSW : *** PD1[xxx] : ***
PD2[xxx] : *** PD3[xxx] : ***
PD4[xxx] : *** PD5[xxx] : ***
PD6[xxx] : *** PD7[xxx] : ***

43

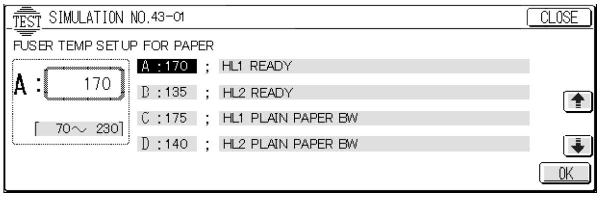
43 -1

Purpose	Setting
Function (Purpose)	Used to set the fusing temperature in each operation mode.
Section	Fixing (Fusing)
Item	Operation
Operation/ Procedure	1. Select the kind of lamps and the operation mode with the scroll key.

2. Enter the set value with the 10-key.
3. Press the [OK] key to set the fusing temperature set in procedure 2.

(Display items)

Display	Content	Set range	Default			
			100v Series	120v Series	200v Series	China only
A	TH1 ready standby	70 – 230	150	150	150	150
B	TH2 ready standby	30 – 200	135	135	135	135
C	TH1 BW normal paper duplex mode	70 – 230	160	160	160	160
D	TH2 BW normal paper duplex mode	30 – 200	145	145	145	145
E	TH1 color normal paper duplex mode	70 – 230	145	145	145	145
F	TH2 color normal paper duplex mode	30 – 200	135	135	135	135
G	Fusing motor forward rotation start TH12 temperature	30 – 200	135	135	135	135
H	Fusing motor forward rotation end TH2 temperature	30 – 200	135	135	135	135
I	Warm-up completion time	90 – 255	90	90	90	90
J	TH1 heavy paper	70 – 230	170	170	170	170
K	TH2 heavy paper	30 – 200	135	135	135	135
L	TH1 heavy paper 2	70 – 230	175	175	175	175
M	TH2 heavy paper 2	30 – 200	145	145	145	145
N	TH1 OHP1	70 – 230	170	170	170	170
O	TH2 OHP1	30 – 200	155	155	155	155
P	TH1 OHP2	70 – 230	170	170	170	170
Q	TH2 OHP2	30 – 200	155	155	155	155
R	TH1 envelope	70 – 230	180	180	180	180
S	TH2 envelope	30 – 200	145	145	145	145
T	TH1 preheating	30 – 200	138	138	138	138
U	Reset from TH1 preheating	30 – 200	160	160	160	160



SIMULATION NO.43-01

FUSER TEMP SETUP FOR PAPER

A : 170

[70～ 230]

A : 170 ; HL1 READY

B : 135 ; HL2 READY

C : 175 ; HL1 PLAIN PAPER BW

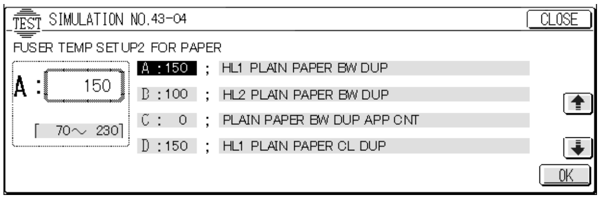
D : 140 ; HL2 PLAIN PAPER BW

43	-4

Purpose	Setting
Function (Purpose)	Used to set the fusing temperature for each paper.
Section	Fixing (Fusing)
Item	Operation
Operation/ Procedure	1. Select the paper kind and the operation mode with the scroll key. 2. Enter the set value with the 10-key. 3. Press the [OK] key to set the fusing temperature set in procedure 2.

(Display items)

Display	Content	Set range	Default			
			100v Series	120v Series	200v Series	China only
A	TH1 BW normal paper duplex mode	70 – 230	155	155	155	155
B	TH2 BW normal paper duplex mode	30 – 200	100	100	100	100
C	Applicable number of sheets in BW normal paper duplex mode	0 – 60	0	0	0	0
D	TH1 color normal paper duplex mode	70 – 230	150	150	150	150
E	TH2 color normal paper duplex mode	30 – 200	100	100	100	100
F	Applicable number of sheets in color normal paper duplex mode	0 – 60	0	0	0	0
G	TH1 BW heavy paper duplex mode	70 – 230	165	165	165	165
H	TH2 BW heavy paper duplex mode	30 – 200	100	100	100	100
E	Applicable number of sheets in BW heavy paper duplex mode	0 – 60	0	0	0	0
F	TH1 color heavy paper duplex mode	70 – 230	165	165	165	165
G	TH2 color heavy paper duplex mode	30 – 200	100	100	100	100
H	Applicable number of sheets of color heavy paper duplex mode	0 – 60	0	0	0	0
I	LL environment temperature set value	0 – 99	18	18	18	18
J	HH environment temperature set value	0 – 99	30	30	30	30



SIMULATION NO.43-04

FUSER TEMP SETUP2 FOR PAPER

A : 150

[70～ 230]

A : 150 ; HL1 PLAIN PAPER BW DUP

B : 100 ; HL2 PLAIN PAPER BW DUP

C : 0 ; PLAIN PAPER BW DUP APP CNT

D : 150 ; HL1 PLAIN PAPER CL DUP

44

44	-1

Purpose	Setting
Function (Purpose)	Used to set enable/disable of correction operations in the image forming (process) section.
Section	Process (Photoconductor, developing, transfer, cleaning)
Item	Operation
Operation/ Procedure	1. Select the process item to enable the operation. 2. Press the [EXECUTE] key. (The operations of all process items must be enabled.)

(Items to be selected)

Display	Content
HV	Image forming section correction (Process correction) (High-density image density correction)
HT	Half-tone image density correction
HT (PRT)	Half-tone image density correction (Printer)
TC	Transfer output correction
RRM	RRM speed correction
MD	Photoconductor membrane decrease (sensitivity/ potential) correction
MD (PRT_BK)	Photoconductor membrane decrease (sensitivity/ potential) correction (Printer: monochrome)
AR	Image resist auto adjustment *1
AR CHK	Image resist auto adjustment error judgment YES/NO *2

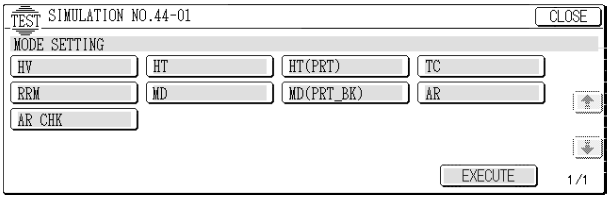
*1: When SIM 50-20 is used to adjust the image resist to the best and the image resist adjustment is performed under the following condition automatically, the best adjustment state may be changed. To avoid this, set the adjustment item AR to Disable.

When the adjustment item AR is set to Disable (ON), the image resist adjustment is automatically performed under the following conditions.

Normally set to ON condition.

*2: When the image registration automatic adjustment operation is abnormal, it is judged as an error or not.

- After replacement of a toner cartridge
- At every 8000 copies (total of print and copy)
  (When, however, 8000 copies is reached during a job, the operation is stopped after completion of the job.)

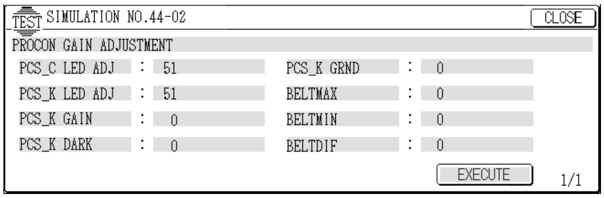


44 -2

Purpose	Adjustment
Function (Purpose)	Black image density sensor adjustment
Section	Process (Transfer)
Item	Operation
Operation/ Procedure	1. Press the [EXECUTE] key. The amplifier gain adjustment of the black image density sensor is automatically performed. After completion of the adjustment, the result is displayed and the [EXECUTE] key display returns to the original state.

(Display items)

	Display	Content	Min Value	Max Value	Default value
A	PCS_C LED ADJ	Color image density sensor current adjustment value	1	255	51
B	PCS K LED ADJ	Black image density sensor LED current adjustment value	1	255	51
C	PCS_K GAIN	Black image density sensor output gain (AMP) adjustment value	0	15	0
D	PCS_K DARK	Black image density sensor dark voltage level	0	255	0
E	PCS_K GRND	Black image density sensor transfer belt surface detection level	0	255	0
F	BELTMAX	Transfer belt surface max. detection level (Black image sensor)	0	255	0
G	BELTMIN	Transfer belt surface min. detection level (Black image sensor)	0	255	0
H	BELTDIF	Difference between max. and min. of the transfer belt surface detection level (BELTmax-BELTMIN)	0	255	0



PCS_C LED ADJ : 51
PCS_K LED ADJ : 51
PCS_K GAIN : 0
PCS_K DARK : 0
PCS_K GRND : 0
BELTMAX : 0
BELTMIN : 0
BELTDIF : 0

If the adjustment is not completed normally, "ERROR" is displayed.
In case of an error, the contents of the adjustment are not revised.

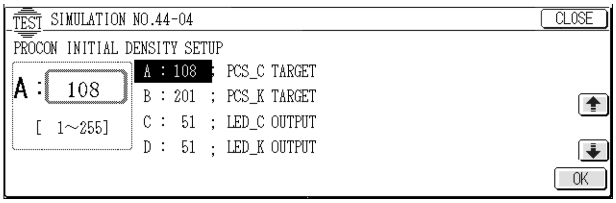
44 -4

Purpose	Setting
Function (Purpose)	Image forming section correction, image density sensor adjustment conditions setup
Section	Process (Photoconductor, development, transfer)
Item	Picture quality
Operation/ Procedure	1. Select the item to beg set by the scroll key. 2. Enter the set value with the 10-key, and press the [OK] key. (The entered value is set.) Set all to the default values.

(Display items)

	Display	Content	Min Value	Max Value	Default value
A	PCS_C TARGET	Color image density sensor adjustment target value	1	255	108
B	PCS_K TARGET	Black image density sensor adjustment target value	1	255	201
C	LED_C OUTPUT	Initial current level in color image density sensor adjustment	1	255	51
D	LED_K OUTPUT	Initial current level in black image density sensor adjustment	1	255	51
E	PCS ADJSTMENT LIMIT	Allowable error level in adjustments	1	255	2
F	BELT GROUND DIF	Error judgment level for the belt surface detection level difference	1	255	255
G	BIAS_CL STANDARD DIF	Set value (color) of the developing basis correction start voltage difference in high density image correction	0	255	50
H	BIAS_BK STANDARD DIF	Set value (black) of the developing basis correction start voltage difference in high density image correction	0	255	75
I	BIAS PATCH INTERVAL	Patch forming developing bias voltage interval (voltage difference) in high density image correction	1	255	50
J	Y_PAT TARGET ID	Base target density level (Y) in high density image correction	1	255	108
K	M_PAT TARGET ID	Base target density level (M) in high density image correction	1	255	125
L	C_PAT TARGET ID	Base target density level (C) in high density image correction	1	255	109
M	K_PAT TARGET ID	Base target density level (K) in high density image correction	1	255	22
N	HV BK_GROUND LIMIT	Error judgment level for belt surface detection level difference (Allowable range of transfer belt surface detection level difference (mix. - min.) of black toner image patch position)	1	255	29
O	PCS_C MARKET TARGET	Adjustment target value (Color image density sensor) when adjusting the primary LED current value by using the calibration plate in SIM44-36.	1	255	110

Display		Content	Min Value	Max Value	Default value
P	PCS_C MARKET LED-REV	In SIM44-36, the toner patch density is read by three kinds of LED currents with the primary LED current adjustment value as the center value in order to obtain PCS C LED ADJ value. This is the deflection range of the current value in the above case. (Color image density sensor)	1	255	10



SIMULATION NO.44-04

PROCON INITIAL DENSITY SETUP

A : 108

[1~255]

A : 108 ; PCS_C TARGET

B : 201 ; PCS_K TARGET

C : 51 ; LED_C OUTPUT

D : 51 ; LED_K OUTPUT

44 -6

Purpose	Operation test/check
Function (Purpose)	Used to forcibly execute the image forming section correction (high density process correction) (process correction).
Section	Process (Photoconductor, developing, transfer, cleaning)
Item	Operation
Operation/ Procedure	1. Press the [EXECUTE] key, and the image forming section correction is started.

2. If the operation is normally completed, COMPLETE is displayed and the correction result becomes valid.

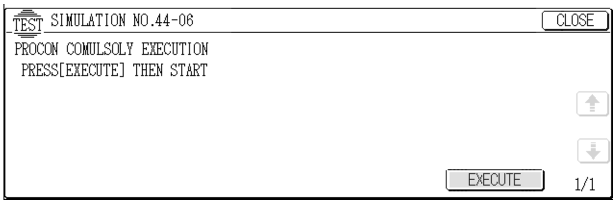
If the operation is not normally completed, ERROPR is highlighted and the detail of the trouble is displayed.

The detail of correction can be checked with SIM 44-9 and SIM 44-12.

(Result/Detail messages list)

Result display	Content
COMPLETE	Correction is normally completed.
ERROR	An error occurred during correction. (The previous correction result is maintained.)
COMPULSORY INTERRUPTION	Compulsory interruption

Error display	Content
COLOR_SENSOR_ ADJUSTMENT_ERROR	Color image density sensor adjustment error
BLACK_GAIN_ ADJUSTMENT_ERROR	Black image density sensor gain adjustment error
BLACK_SENSOR_ ADJUSTMENT_ERROR	Black image density sensor adjustment error
BLACK_PROCON_ERROR	High-density image density correction (process correction) error (K)
CYAN_PROCON_ERROR	High-density image density correction (process correction) error (C)
MAGENTA_PROCON_ERROR	High-density image density correction (process correction) error (M)
YELLOW_PROCON_ERROR	High-density image density correction (process correction) error (Y)
CONNECTION_ERROR	Sensor-PCU PWB communication trouble



SIMULATION NO.44-06

PROCON COMULSOLY EXECUTION

PRESS[EXECUTE] THEN START

44 -9

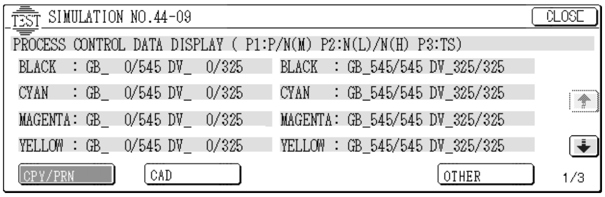
Purpose	Adjustment/Setting/Operation data output, check (display, print)
Function (Purpose)	Used to check the data related to the image forming section correction (the corrected main charger grid voltage in each print mode, the developing bias voltage, etc.). (Used to check that correction is performed normally or not.)
Section	Process (Photoconductor, developing, transfer, cleaning)
Item	Data Operation data (Machine conditions)
Operation/ Procedure	1. By scrolling with the scroll key, each data of the image forming section correction result. can be checked.

2. [CPY/PRN] key selected: Process control mode is displayed. [CAD] key selected: Drawing mode is displayed. (Printer, etc.) [OTHER] key selected: The environment area and the number of execution of process control are displayed.

(Displayed items)

Display	Content
P (PROCON MODE)	Main charger grid voltage/developing bias voltage by high density image correction (Y, M, C, K)
N (NORMAL MODE (MIDDLE)	Actual main charger grid voltage/ developing bias voltage (Normal, medium speed mode) (Y, M, C, K)
N (NORMAL MODE (LOW)	Actual main charger grid voltage/ developing bias voltage (Normal, low speed mode) (Y, M, C, K)
N (NORMAL MODE (HIGH)	Actual main charger grid voltage/ developing bias voltage (Normal, high-speed mode) (Y, M, C, K)
TS (TONER SAVE MODE)	Actual main charger grid voltage / Developing bias voltage (toner save high/ medium/low speed mode) (K)
D (DRAWING MODE (MIDDLE)	Actual main charger grid voltage/ developing bias voltage (Drawing, medium speed mode) (Y, M, C, K)
D (DRAWING MODE (LOW)	Actual main charger grid voltage / Developing bias voltage (drawing, low speed mode) (YMCK)
TEMP AREA	Temperature area
TEMP	Temperature (HEX value)
HUMIDITY AREA	Humidity
HUMIDITY	Humidity (HEX value)
MD X STEP (M/L/H)	Photoconductor drum membrane decrease correction step (Max. 4 steps) /Correction voltage
CONVERSION	Discrimination of Sharp version and other company version of toner cartridge (0: SHARP, 1: Other company)
DESTINATION	Destination of toner cartridge stored in the machine memory
MODEL TYPE	Toner cartridge application model (DM/AR)
CRUM DESTINATION (X)	Toner cartridge destination
DV X STEP (X)	Developing bias voltage correction step (corretion voltage) for toner cartridge life

Display	Content
HV	Number of corrections of high density image density
HT	Number of corrections of half-tone image density



SIMULATION NO.44-09

PROCESS CONTROL DATA DISPLAY (P1:P/N(M) P2:N(L)/N(H) P3:TS)

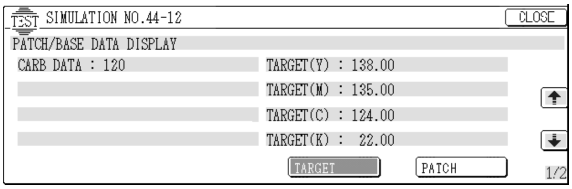
```
BLACK  : GB_  0/545 DV_  0/325    BLACK  : GB_545/545 DV_325/325
CYAN   : GB_  0/545 DV_  0/325    CYAN   : GB_545/545 DV_325/325
MAGENTA: GB_  0/545 DV_  0/325    MAGENTA: GB_545/545 DV_325/325
YELLOW : GB_  0/545 DV_  0/325    YELLOW : GB_545/545 DV_325/325
```

44 -12

Purpose	Adjustment/Setting/Operation data output, check (display, print)
Function (Purpose)	Used to check the sampling toner image patch density data in the image forming section correction (high-density correction) (process correction). This simulation allows to check if the correction operation is performed normally.)
Section	Process (Photoconductor, developing, transfer, cleaning)
Item	Data Operation data (Machine conditions)
Operation/ Procedure	The [TARGET] key and the [PATCH] key are used to select the display of the correction target level of each color and the toner image patch density sampling data.

(Display items)

Display	Content
CARB DATA	Color image density sensor output level when the calibration plate is detected by the basis of the color image density sensor LED current adjustment value.
ID (YMC)	Actual target density level in high density image correction
ID (K)	Actual target density level in high density image correction
n-1	Toner patch density (previous patch of nth patch data) in high density image correction (Center voltage - 50v) (n = 1 to 10))
n-2	Toner patch density (Medium patch of nth patch data) in high density image correction (Center voltage) (n = 1 to 10))
n-3	Toner patch density (following patch of nth patch data) in high density image correction (Center voltage + 50v) (n = 1 to 10))



SIMULATION NO.44-12

PATCH/BASE DATA DISPLAY

```
CARB DATA : 120          TARGET(Y) : 138.00
                         TARGET(M) : 135.00
                         TARGET(C) : 124.00
                         TARGET(K) :  22.00
```

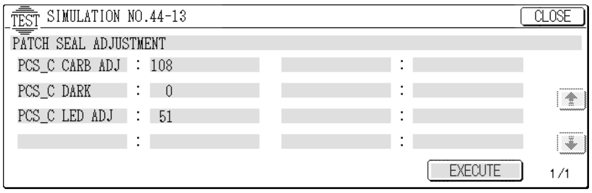
44 -13

Purpose	Adjustment
Function (Purpose)	Color image density sensor adjustment (Adjustment by the adjustment jig)
Section	Process (Transfer)
Operation/ Procedure	1. Open the front cover of the machine. 2. Install the color image density sensor adjustment jig to the transfer unit frame, and close the left cabinet.

3. With the front cover of the machine open (cover open/close switch OFF), turn on the power.
4. Enter the SIM44-13 mode.
5. Close the front cover of the machine.
6. Press the [EXECUTE] key.
   Adjustment is performed automatically. After completion of adjustment, the result is displayed and the [EXECUTE] key display returns to the original state.
7. Remove the color image density sensor adjustment jig.

(Set items)

Display		Content	Min Value	Max Value	Default value
A	PCS_C CARB ADJ	Color image density sensor LED current adjustment target value	1	255	108
B	PCS_C DARK	Color image density sensor dark voltage level	0	255	0
C	PCS_C LED ADJ	Color image density sensor current adjustment value	1	255	51



SIMULATION NO.44-13

PATCH SEAL ADJUSTMENT

```
PCS_C CARB ADJ : 108
PCS_C DARK     :  0
PCS_C LED ADJ  : 51
```

If the adjustment is not completed normally, "ERROR" is displayed.

In case of an error, the contents of the adjustment are not revised.

44 -14

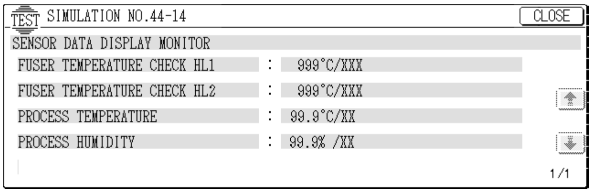
Purpose	Adjustment/Setting/Operation data output, check (display, print)
Function (Purpose)	Used to monitor the output level of the fusing temperature sensor, the machine temperature sensor, and the humidity sensor.
Section	Others
Operation/ Procedure	The fusing temperature, the fusing thermistor temperature, and the machine temperature and humidity are displayed.

(Display items)

Display	Content
FUSER TEMPERATURE CHECK HL1	Fusing temperature display Upper (Temperature/AD value)
FUSER TEMPERATURE CHECK HL2	Fusing temperature display Lower (Temperature/AD value)
PROCESS TEMPERATURE	Image process correction temperature sensor temperature display (Temperature/AD value)
PROCESS HUMIDITY	Image process correction humidity sensor humidity display (Relative humidity/AD value)

When the value exceeds the detection range, "-" is displayed.

Developing temperature:	-20.0 to 40.0
Humidity:	0.0 to 99.9
Board temperature:	-20.0 to 80.0



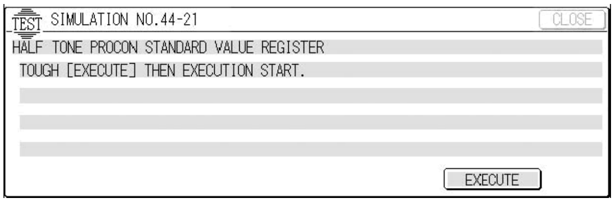
SIMULATION NO.44-14

SENSOR DATA DISPLAY MONITOR

```
FUSER TEMPERATURE CHECK HL1 :  999°C/XXX
FUSER TEMPERATURE CHECK HL2 :  999°C/XXX
PROCESS TEMPERATURE         : 99.9°C/XX
PROCESS HUMIDITY            : 99.9% /XX
```

44 -21

Purpose	Setting
Function (Purpose)	Used to store color balance adjustment data. (Half tone image correction initial setting) (After execution of color balance adjustment with SIM 46-21, this simulation must be executed.)
Section	Picture quality
Operation/ Procedure	1. Press the [EXECUTE] key, and it is highlighted and the operation of color balance adjustment data (half-tone correction initial data) storing is started. After completion of the execution, the [EXECUTE] key returns to the normal display ∗ In case of an error in the above operation, "ERROR" is displayed and the color balance adjustment data (half-tone initial data) are not stored.



```
SIMULATION NO.44-21
HALF TONE PROCON STANDARD VALUE REGISTER
 TOUGH [EXECUTE] THEN EXECUTION START.
```

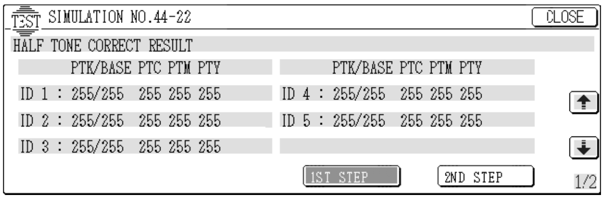
44 -22

Purpose	Adjustment/Setting/Operation data output, check (display, print)
Function (Purpose)	Used to check each color toner patch image density UITU in half tone image forming section correction (process correction). (This simulation allows to check if correction operation is performed normally.)
Section	Process (Photoconductor, developing, transfer, cleaning)
Item	Data Operation data (Machine conditions)
Operation/ Procedure	The toner image patch density data in half-tone correction are displayed. [1ST STEP]: The toner image patch density sampling data in the 1ST STEP are displayed. [2ND STEP]: The toner image patch density sampling data in the 2ND STEP are displayed.

(Display items)

Display	Content
1ST STEP	Correction operation 1ST STEP toner image patch density detection level (n=1 – 5)
2ND STEP	Correction operation 2ND STEP toner image patch density detection level (n=1 – 16)

ID-n	PTK/GND	PTC	PTM	PTY
	Black image patch density detection level/Transfer belt element detection level	Cyan image patch density detection level	Magenta image patch density detection level	Yellow image patch density detection level



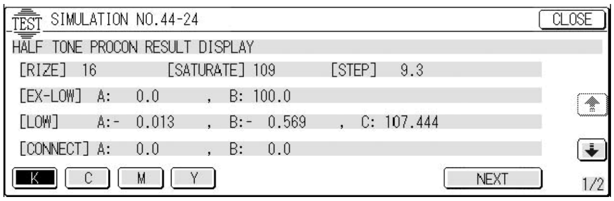
```
SIMULATION NO.44-22
HALF TONE CORRECT RESULT
       PTK/BASE PTC PTM PTY             PTK/BASE PTC PTM PTY
ID 1 : 255/255  255 255 255      ID 4 : 255/255  255 255 255
ID 2 : 255/255  255 255 255      ID 5 : 255/255  255 255 255
ID 3 : 255/255  255 255 255
```

44 -24

Purpose	Adjustment/Setting/Operation data output, check (display, print)
Function (Purpose)	Used to check the half tone correction result. (This simulation allows to check if correction is executed properly or not.)
Section	Process (Photoconductor, developing, transfer, cleaning)
Item	Data Operation data (Machine conditions)
Operation/ Procedure	1. Select a page with the scroll key. 2. Select the color mode with [K], [C], [M], and [Y] keys.

3. When [NEXT] key is pressed repeatedly, the display changes from Coefficient to Reference Value then to Correction Value in this sequence.

- When the displayed item is not yet executed, "-" is displayed. In case of an error, "ERR" is displayed.
- For the reference value and the correction value, an error display is not made, but the previous value is displayed.



```
SIMULATION NO.44-24
HALF TONE PROCON RESULT DISPLAY
 [RIZE]  16          [SATURATE] 109        [STEP]   9.3
 [EX-LOW]  A:    0.0       ,  B: 100.0
 [LOW]     A:-   0.013     ,  B:-  0.569     ,  C: 107.444
 [CONNECT] A:    0.0       ,  B:   0.0
```

44 -25

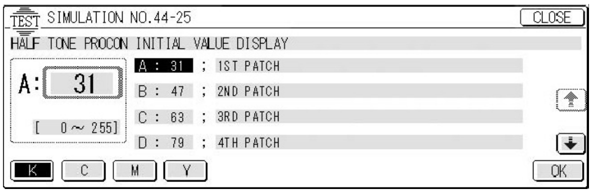
Purpose	Adjustment/Setting/Operation data output, check (display, print)
Function (Purpose)	Setting the half tone correction conditions.
Section	Process (Photoconductor, developing, transfer, cleaning)
Item	Data Operation data (Machine conditions)
Operation/ Procedure	1. Select the color mode with [K], [C], [M], and [Y] keys. 2. Select the set item with the scroll key.

3. Enter the set value with the 10-key and press the [OK] key to store the set value.

Note: Do not set to other value than the default.

(Items to be set)

Item		Default setting value	Set range	Content
A	1ST PATCH	31	0 – 255	Half-tone process control 1st step 1st patch print gradation
B	2ND PATCH	47	0 – 255	Half-tone process control 1st step 2nd patch print gradation
C	3RD PATCH	63	0 – 255	Half-tone process control 1st step 3rd patch print gradation
D	4TH PATCH	79	0 – 255	Half-tone process control 1st step 4th patch print gradation
E	5TH PATCH	255	0 – 255	Half-tone process control 1st step 5th patch print gradation



SIMULATION NO.44-25

HALF TONE PROCON INITIAL VALUE DISPLAY

A: 31

[0 ~ 255]

A : 31 ; 1ST PATCH

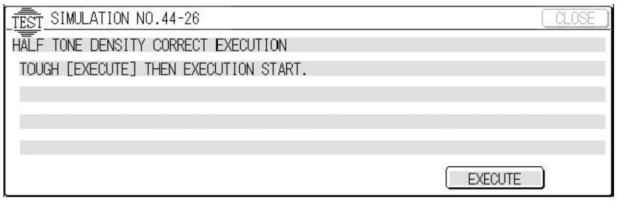
B : 47 ; 2ND PATCH

C : 63 ; 3RD PATCH

D : 79 ; 4TH PATCH

44 -26

Purpose	Adjustment
Function (Purpose)	Used to execute half tone correction compulsorily.
Section	Process (Photoconductor, developing, transfer, cleaning)
Item	Picture quality
Operation/ Procedure	1. Press the [EXECUTE] key, and it is highlighted. The half tone correction is started. When the compulsory execution is completed, the [EXECUTE] key returns to the normal display. * In the case of abnormal completion, ERROR is displayed and the correction data are not stored.



SIMULATION NO.44-26

HALF TONE DENSITY CORRECT EXECUTION

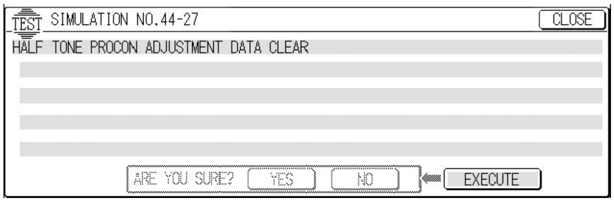
TOUGH [EXECUTE] THEN EXECUTION START.

44 -27

Purpose	Data clear
Function (Purpose)	Used to clear the half tone correction data and set to the default level.
Section	Process (Photoconductor, developing, transfer, cleaning)
Item	Data
Operation/ Procedure	1. Press the [EXECUTE] key. The [YES] and [NO] keys become active.

2. Press the [YES] key, and the half tone correction data is set to the default level. (If the [NO] key is pressed, it is canceled.)

* After replacement of the OPC drum, be sure to execute this simulation.



SIMULATION NO.44-27

HALF TONE PROCON ADJUSTMENT DATA CLEAR

ARE YOU SURE?

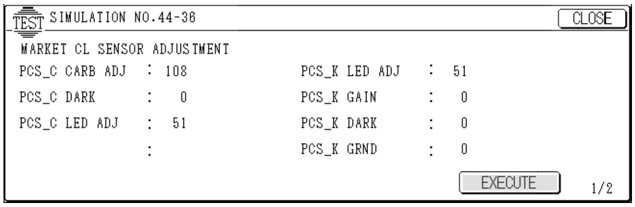
44 -36

Purpose	Adjustment
Function (Purpose)	Color image density sensor and black image density sensor adjustment (simple adjustment)
Section	Process (Transfer)
Operation/ Procedure	1. Enter the SIM44-36 mode. 2. Press the [EXECUTE] key. Adjustment is performed automatically. After completion of adjustment, the result is displayed and the [EXECUTE] key display returns to the original state.

Note: Do not execute this simulation.
Use SIM 44-2 and 44-13 to adjust the image density sensor.

(Adjustment items)

Display	Content	Min Value	Max Value	Default value
PCS_C CARB ADJ	Color image density sensor LED current adjustment target value	1	255	108
PCS_C DARK	Color image density sensor dark voltage level	0	255	0
PCS_C LED ADJ	Color image density sensor current adjustment value	1	255	51
PCS K LED ADJ	Black image density sensor LED current adjustment value	1	255	51
PCS_K GAIN	Black image density sensor output gain (AMP) adjustment value	0	15	0
PCS_K DARK	Black image density sensor dark voltage level	0	255	0
PCS_K GRND	Black image density sensor transfer belt surface detection level	0	255	0
BELTMAX	Transfer belt surface max. detection level (Black image sensor)	0	255	0
BELTMIN	Transfer belt surface min. detection level (Black image sensor)	0	255	0
BELTDIF	Difference between the max. value and the min. value of transfer belt surface detection level (BELTMAX-BELTMIN)	0	255	0



SIMULATION NO.44-36

MARKET CL SENSOR ADJUSTMENT

PCS_C CARB ADJ : 108

PCS_C DARK : 0

PCS_C LED ADJ : 51

:

PCS_K LED ADJ : 51

PCS_K GAIN : 0

PCS_K DARK : 0

PCS_K GRND : 0

1/2

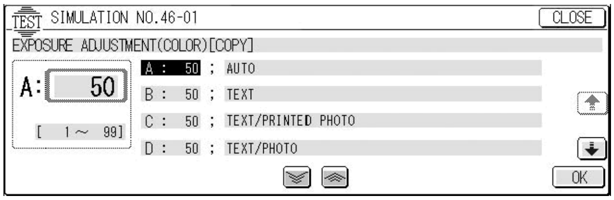
46

46 -1

Purpose	Adjustment
Function (Purpose)	Used to adjust the copy density of each color copy mode in the low-density area. The copy densities of all colors in the low-density area are changed.
Section	Process (Photoconductor, developing, transfer, cleaning)
Item	Picture quality Density
Operation/ Procedure	1. Select the copy mode for copy density adjustment with the scroll key. 2. Enter the set value with the 10-key and press the [OK] key, and the set value is stores.

(Items to be set)

	Display	Copy mode (Color)	Min. Value	Max. Value	Default
A	AUTO	Auto (Auto document kind recognition, auto exposure)	1	99	50
B	TEXT	Text	1	99	50
C	TEXT/PRINTED PHOTO	Text/Printed photo	1	99	50
D	TEXT/PHOTO	Text/Photograph	1	99	50
E	PRINTED PHOTO	Printed photo	1	99	50
F	PHOTOGRAPH	Photograph	1	99	50
G	MAP	Map	1	99	50
H	TEXT (COPY TO COPY)	Text (Copy document)	1	99	50
I	TEXT/PRINTED PHOTO (COPY TO COPY)	Text/Print (Copy document)	1	99	50
J	PRINTED PHOTO (COPY TO COPY)	Printed photo	1	99	50
K	TEXT (COLOR TONE ENHANCEMENT)	Text (Color emphasis)	1	99	50
L	TEXT/PRINTED PHOTO (COLOR TONE ENHANCEMENT)	Text/Print (Color emphasis)	1	99	50
M	TEXT/PHOTO (COLOR TONE ENHANCEMENT)	Color/Photograph (Color emphasis)	1	99	50
N	PRINTED PHOTO (COLOR TONE ENHANCEMENT)	Prided photo (Color emphasis)	1	99	50
O	PHOTOGRAPH (COLOR TONE ENHANCEMENT)	Photograph (Color emphasis)	1	99	50
P	MAP (COLOR TONE ENHANCEMENT)	Map (Color emphasis)	1	99	50
Q	SINGLE COLOR	Single color	1	99	50
R	SINGLE COLOR (COPY TO COPY)	Single color (Copy document)	1	99	50



SIMULATION NO.46-01

EXPOSURE ADJUSTMENT(COLOR)[COPY]

A: 50

[1～ 99]

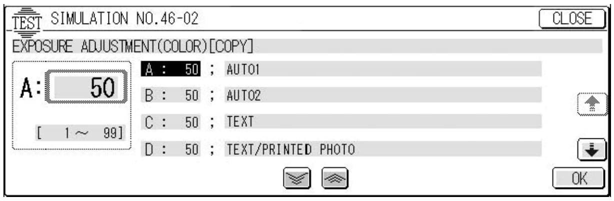
A : 50 ; AUTO
B : 50 ; TEXT
C : 50 ; TEXT/PRINTED PHOTO
D : 50 ; TEXT/PHOTO

46 -2

Purpose	Adjustment
Function (Purpose)	Used to adjust the copy density of the low-density area in each monochrome copy mode. The copy density of the low-density area is changed.
Section	Process (Photoconductor, developing, transfer, cleaning)
Item	Picture quality Density
Operation/ Procedure	1. Select the copy mode for copy density adjustment with the scroll key. 2. Enter the set value with the 10-key and press the [OK] key, and the entered value is set.

(Items to be set)

	Display	Copy mode (Color)	Min. Value	Max. Value	Default
A	AUTO1 (*1)	Auto 1 (Japan)	1	99	50
B	AUTO2 (*2)	Auto 2 (Except Japan)	1	99	50
C	TEXT	Text	1	99	50
D	TEXT/PRINTED PHOTO	Text/Printed photo	1	99	50
E	TEXT/PHOTO	Text/Photograph	1	99	50
F	PRINTED PHOTO	Printed photo	1	99	50
G	PHOTOGRAPH	Photograph	1	99	50
H	MAP	Map	1	99	50
I	TEXT (COPY TO COPY)	Text (Copy document)	1	99	50
J	TEXT/PRINTED PHOTO (COPY TO COPY)	Text/Printed photo (Copy document)	1	99	50
K	PRINTED PHOTO (COPY TO COPY)	Printed photo (Copy document)	1	99	50



SIMULATION NO.46-02

EXPOSURE ADJUSTMENT(COLOR)[COPY]

A: 50

[1～ 99]

A : 50 ; AUTO1
B : 50 ; AUTO2
C : 50 ; TEXT
D : 50 ; TEXT/PRINTED PHOTO

46 -4

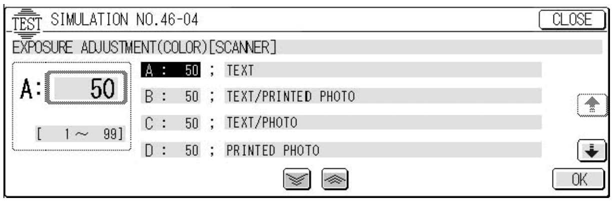
Purpose	Adjustment
Function (Purpose)	Used to adjust the image density (color mode) in the network scan mode.
Section	Scanner (reading)
Item	Picture quality Density
Operation/ Procedure	1. Select the scan mode with the scroll key. 2. Enter the adjustment value with the 10-key and press the [OK] key, and the entered value is set.

The adjustment result is valid only for the network scan mode.

(Items to be set)

	Display	Network scan color mode	Min. Value	Max. Value	Default
A	TEXT	Text	1	99	50
B	TEXT/PRINTED PHOTO	Text/Printed photo	1	99	50
C	TEXT/PHOTO	Text/Photograph	1	99	50
D	PRINTED PHOTO	Printed photo	1	99	50
E	PHOTOGRAPH	Photograph	1	99	50
F	MAP	Map	1	99	50

* When the adjustment value is increased, the density is increased. When the adjustment value is decreased, the density is decreased.



SIMULATION NO.46-04

EXPOSURE ADJUSTMENT(COLOR)[SCANNER]

A: 50

[1～ 99]

A : 50 ; TEXT
B : 50 ; TEXT/PRINTED PHOTO
C : 50 ; TEXT/PHOTO
D : 50 ; PRINTED PHOTO

46 -5

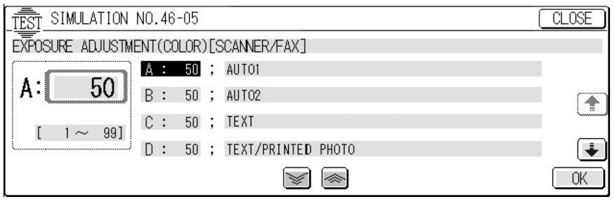
Purpose	Adjustment
Function (Purpose)	Used to adjust the image density (monochrome mode) in the network scan mode.
Section	Scanner (reading)
Item	Picture quality Density
Operation/ Procedure	1. Select the scan mode with the scroll key. 2. Enter the adjustment value with the 10-key and press the [OK] key, and the entered value is set.

The adjustment result is valid only for the network scan mode.

(Items to be set)

Display		Network scan monochrome mode	Min. Value	Max. Value	Default
A	AUTO TEXT	Text (Auto)	1	99	50
B	AUTO TEXT/ PRINT PHOTO	Text/Printed photo (Auto)	1	99	50
C	AUTO TEXT/ PHOTO	Text/Photograph (Auto)	1	99	50
D	TEXT	Text	1	99	50
E	TEXT/PRINTED PHOTO	Text/Printed photo	1	99	50
F	TEXT/PHOTO	Text/Photograph	1	99	50
G	PRINTED PHOTO	Printed photo	1	99	50
H	PHOTOGRAPH	Photograph	1	99	50
I	MAP	Map	1	99	50

* When the adjustment value is increased, the density is increased. When the adjustment value is decreased, the density is decreased.



SIMULATION NO.46-05

EXPOSURE ADJUSTMENT(COLOR)[SCANNER/FAX]

A: 50

[1 ～ 99]

A : 50 ; AUTO1
B : 50 ; AUTO2
C : 50 ; TEXT
D : 50 ; TEXT/PRINTED PHOTO

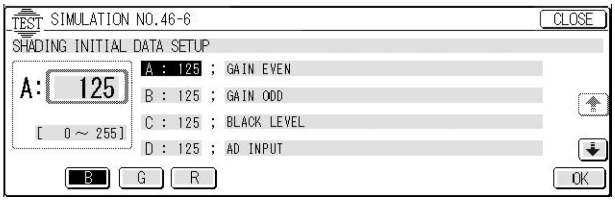
46 -6

Purpose	Adjustment
Function (Purpose)	1) Used to set the CCD black level offset level. 2) Used to set the CCD white level gain.
Section	Scanner (reading)
Item	Picture quality
Operation/ Procedure	Only one color button can be selected. The selected key is highlighted. (Default: [B])

1. Select the color to be adjusted with the color key (K/C/M/Y).
2. Select the copy mode for the copy density adjustment with the scroll key.
3. Select the color mode with the color key (RGB). (The currently set adjustment value is displayed.)
4. Enter the set value with the 10-key and press the [OK] key, and the entered value is set.

Set the following set value.

Display		Content	Min. Value	Max. Value	Default
A	GAIN EVEN	Gain adjustment start value (Even number)	0	255	0
B	GAIN ODD	Gain adjustment start value (Odd number)	0	255	0
C	BLACK LEVEL	Output black level	0	255	32
D	AD INPUT	Analog IC function control	0	31	2



SIMULATION NO.46-6

SHADING INITIAL DATA SETUP

A: 125

[0 ～ 255]

A : 125 ; GAIN EVEN
B : 125 ; GAIN ODD
C : 125 ; BLACK LEVEL
D : 125 ; AD INPUT

46 -8

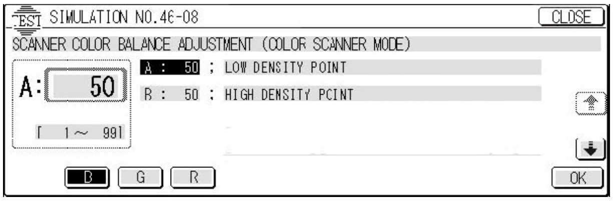
Purpose	Adjustment
Function (Purpose)	Image color balance adjustment in the network scan mode
Section	Scanner (reading)
Item	Picture quality
Operation/ Procedure	1. Select the adjustment mode with the scroll keys. 2. Select the color (R, G, B) to be adjusted. 3. Enter the adjustment value with the 10-key and press [OK] key, and the entered value will be set.

When the adjustment value is increased, the color becomes stronger. When the adjustment value is decreased, the color becomes weaker.

The result of this adjustment is effective only in the network scan mode.

(Items to be set)

Display		Content	Set range	Default
A	LOW DENSITY POINT	Color balance adjustment in low density area	1 – 99	50
B	HIGH DENSITY POINT	Color balance adjustment in high density area	1 – 99	50



SIMULATION NO.46-08

SCANNER COLOR BALANCE ADJUSTMENT (COLOR SCANNER MODE)

A: 50

[1 ～ 99]

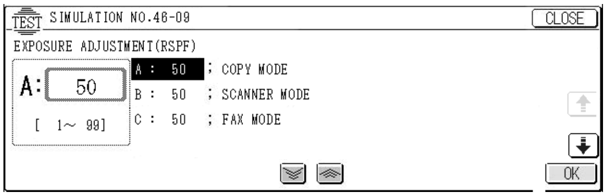
A : 50 ; LOW DENSITY POINT
B : 50 ; HIGH DENSITY PCINT

46 -9

Purpose	Setting
Function (Purpose)	Used to set the exposure adjustment value in each document feeder unit mode.
Section	Automatic document feeder
Item	Picture quality
Operation/ Procedure	1. Select a mode to be adjusted with the scroll key. 2. Enter the set value with the 10-key and press the [OK] key to store the set value.

(Items to be set)

Item	Display item	Content	Set range	Default
A	COPY MODE	Document feeder unit copy mode exposure adjustment	1 to 99	50
B	SCANNER MODE	Document feeder unit scanner mode exposure adjustment	1 to 99	50
C	FAX MODE	Document feeder unit FAX mode exposure adjustment	1 to 99	50



EXPOSURE ADJUSTMENT(RSPF)

A: 50

[1~ 99]

A : 50 ; COPY MODE
B : 50 ; SCANNER MODE
C : 50 ; FAX MODE

46 -10

Purpose	Adjustment
Function (Purpose)	Used to adjust the copy color balance (color) (copy document mode) (gamma/density adjustment for each color)
Section	Image process (ICU)
Item	Picture quality Color balance
Operation/ Procedure	1. Select the color to be adjusted with the color key (K/C/M/Y).

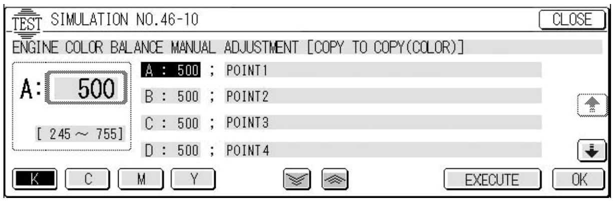
2. Select the adjustment point with the scroll key.
3. Enter the adjustment value of the selected point with the 10-key and press the [OK] key. (The entered value is set.)

When the [EXECUTE] key is pressed, the color balance adjustment check pattern corresponding to the entered adjustment value is printed.

(Items to be set)

Display		Min. Value	Max. Value	Default
A ↓ O	POINT1 ↓ POINT15	245 ↓ 245	755 ↓ 755	500 ↓ 500

Common to KCMY.



ENGINE COLOR BALANCE MANUAL ADJUSTMENT [COPY TO COPY(COLOR)]

A: 500

[245 ~ 755]

A : 500 ; POINT1
B : 500 ; POINT2
C : 500 ; POINT3
D : 500 ; POINT4

46 -11

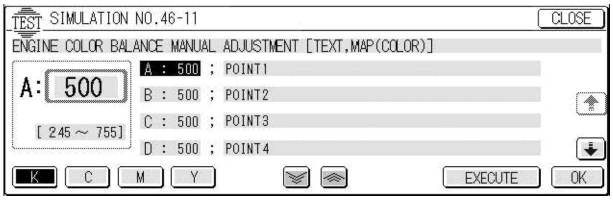
Purpose	Adjustment
Function (Purpose)	Used to adjust the copy color balance (color) (text mode/map mode) (gamma/density adjustment for each color)
Section	Image process (ICU)
Item	Picture quality Color balance
Operation/ Procedure	1. Select the color to be adjusted with the color key (K/C/M/Y).

2. Select the adjustment point with the [2], [4] keys.
3. Enter the adjustment value of the selected point with the 10-key and press the [OK] key. (The entered value is set.)

When the [EXECUTE] key is pressed, the color balance adjustment check pattern corresponding to the entered adjustment value is printed.

(Items to be set)

Display		Min. Value	Max. Value	Default
A ↓ O	POINT1 ↓ POINT15	245 ↓ 245	755 ↓ 755	500 ↓ 500



ENGINE COLOR BALANCE MANUAL ADJUSTMENT [TEXT,MAP(COLOR)]

A: 500

[245 ~ 755]

A : 500 ; POINT1
B : 500 ; POINT2
C : 500 ; POINT3
D : 500 ; POINT4

46 -12

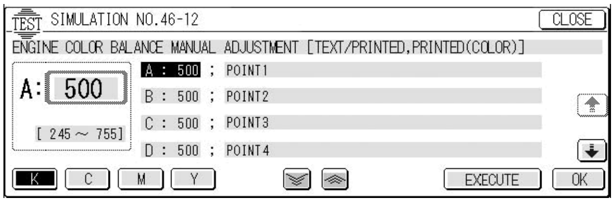
Purpose	Adjustment
Function (Purpose)	Used to adjust the copy color balance (color) (text/ printed photo mode/Photograph mode) (gamma/ density adjustment for each color)
Section	Image process (ICU)
Item	Picture quality Color balance
Operation/ Procedure	1. Select the color to be adjusted with the color key (K/C/M/Y).

2. Select the adjustment point with the scroll key.
3. Enter the adjustment value of the selected point with the 10-key and press the [OK] key. (The entered value is set.)

When the [EXECUTE] key is pressed, the color balance adjustment check pattern corresponding to the entered adjustment value is printed.

(Items to be set)

Display		Min. Value	Max. Value	Default
A ↓ O	POINT1 ↓ POINT15	245 ↓ 245	755 ↓ 755	500 ↓ 500



ENGINE COLOR BALANCE MANUAL ADJUSTMENT [TEXT/PRINTED,PRINTED(COLOR)]

A: 500

[245 ~ 755]

A : 500 ; POINT1
B : 500 ; POINT2
C : 500 ; POINT3
D : 500 ; POINT4

46 -13

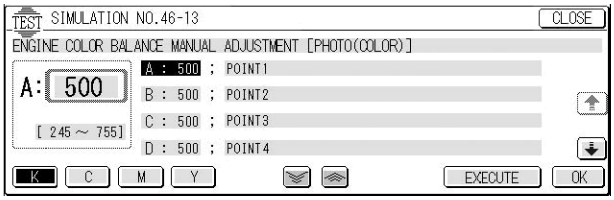
Purpose	Adjustment
Function (Purpose)	Used to adjust the copy color balance (color) (photograph mode) (gamma/density adjustment for each color)
Section	Image process (ICU)
Item	Picture quality Color balance
Operation/ Procedure	1. Select the color to be adjusted with the color key (K/C/M/Y).

2. Select the adjustment point with the scroll key.
3. Enter the adjustment value of the selected point with the 10-key and press the [OK] key. (The entered value is set.)

When the [EXECUTE] key is pressed, the color balance adjustment check pattern corresponding to the entered adjustment value is printed.

(Items to be set)

Display		Min. Value	Max. Value	Default
A ↓ O	POINT1 ↓ POINT15	245 ↓ 245	755 ↓ 755	500 ↓ 500


TEST SIMULATION NO.46-13

ENGINE COLOR BALANCE MANUAL ADJUSTMENT [PHOTO(COLOR)]

A: 500

[245 ~ 755]

A : 500 ; POINT1
B : 500 ; POINT2
C : 500 ; POINT3
D : 500 ; POINT4

46 -14

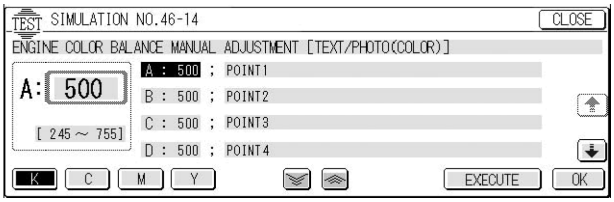
Purpose	Adjustment
Function (Purpose)	Used to adjust the copy color balance (color) (text/photograph mode) (gamma/density adjustment for each color)
Section	Image process (ICU)
Item	Picture quality Color balance
Operation/ Procedure	1. Select the color to be adjusted with the color key (K/C/M/Y).

2. Select the adjustment point with the scroll key.
3. Enter the adjustment value of the selected point with the 10-key and press the [OK] key. (The entered value is set.)

When the [EXECUTE] key is pressed, the color balance adjustment check pattern corresponding to the entered adjustment value is printed.

(Items to be set)

Display		Min. Value	Max. Value	Default
A ↓ O	POINT1 ↓ POINT15	245 ↓ 245	755 ↓ 755	500 ↓ 500


TEST SIMULATION NO.46-14

ENGINE COLOR BALANCE MANUAL ADJUSTMENT [TEXT/PHOTO(COLOR)]

A: 500

[245 ~ 755]

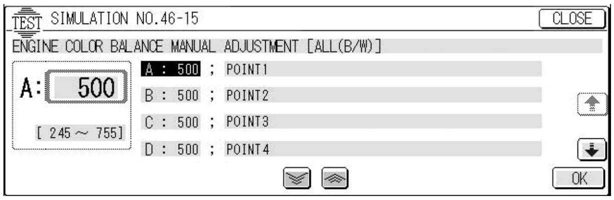
A : 500 ; POINT1
B : 500 ; POINT2
C : 500 ; POINT3
D : 500 ; POINT4

46 -15

Purpose	Adjustment
Function (Purpose)	Engine color balance manual correction
Section	Image process (ICU)
Item	Picture quality Density
Operation/ Procedure	1. Select the adjustment point with the scroll key. 2. Enter the adjustment value of the selected point with the 10-key and press the [OK] key. (The entered value is set.)

(Items to be set)

Display		Min. Value	Max. Value	Default
A ↓ O	POINT1 ↓ POINT15	373 ↓ 373	627 ↓ 627	500 ↓ 500


TEST SIMULATION NO.46-15

ENGINE COLOR BALANCE MANUAL ADJUSTMENT [ALL(B/W)]

A: 500

[245 ~ 755]

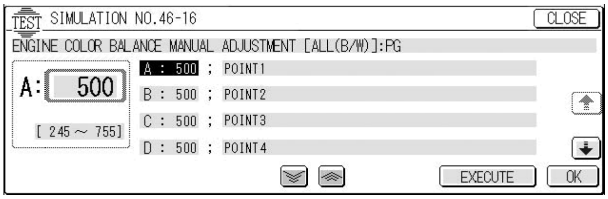
A : 500 ; POINT1
B : 500 ; POINT2
C : 500 ; POINT3
D : 500 ; POINT4

46 -16

Purpose	Adjustment
Function (Purpose)	Used to adjust the gamma and density. (Monochrome mode) (The adjustment check pattern is printed.)
Section	Image process (ICU)
Item	Picture quality Density
Operation/ Procedure	1. Select the adjustment point with the scroll key. 2. Enter the adjustment value of the selected point with the 10-key and press the [OK] key. (The entered value is set.) When the [EXECUTE] key is pressed, the color balance adjustment check pattern corresponding to the entered adjustment value is printed.

(Items to be set)

Display		Min. Value	Max. Value	Default
A ↓ O	POINT1 ↓ POINT15	373 ↓ 373	627 ↓ 627	500 ↓ 500


TEST SIMULATION NO.46-16

ENGINE COLOR BALANCE MANUAL ADJUSTMENT [ALL(B/W)]:PG

A: 500

[245 ~ 755]

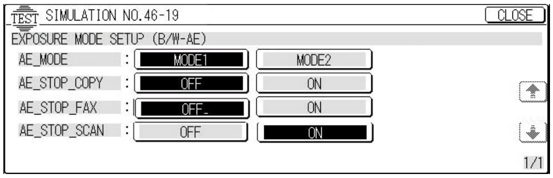
A : 500 ; POINT1
B : 500 ; POINT2
C : 500 ; POINT3
D : 500 ; POINT4

46 -19

Purpose	Adjustment
Function (Purpose)	1. Used to set half tone (gamma) selection (destination setting) in the monochrome auto copy mode. 2. Used to set the automatic exposure operation mode (Monochrome copy mode, FAX mode, monochrome scanner mode).
Section	Scanner (reading)
Item	Picture quality
Operation/ Procedure	1. Select the adjustment mode with the scroll keys. 2. Set the half tone density (gamma) with [MODE 1] / [MODE 2] keys. 3. Select the adjustment mode with the scroll keys. 4. Select the operation mode of the automatic exposure mode with [ON]/[OFF] keys.

Display	Set mode	Content	Destination	Default
AE MODE	MODE 1 (AUTO 1)	The half-tone density is higher than that of AUTO 2 mode.	Japan	Japan: MODE 1 (AUTO 1)
	MODE 2 (AUTO 2)	The half-tone density is lower than that of AUTO 1 mode.	Except Japan	Except Japan: MODE 2 (AUTO 2)

Display	Setting mode	Content	Default
AE STOP MODE	OFF	The automatic density (exposure) control is performed on real time. (The density level is changed according to the document pattern on real time.)	AE STOP COPY: OFF AE STOP FAX: OFF
	ON	The density at the lead edge of the document is scanned, and the overall density (exposure) level is determined by the scanned density level. (The overall density level is fixed.)	AE STOP SCAN: ON


TEST SIMULATION NO.46-19

EXPOSURE MODE SETUP (B/W-AE)

AE_MODE : MODE1 MODE2

AE_STOP_COPY : OFF ON

AE_STOP_FAX : OFF ON

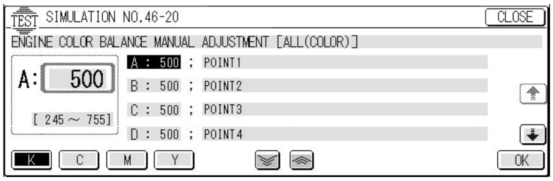
AE_STOP_SCAN : OFF ON

46 -20

Purpose	Adjustment
Function (Purpose)	Used to adjust copy color balance (All color copy mode gamma/density adjustment) (All color copy mode color balance/gamma/density are changed.) Same as SIM 46-21, however, printing is not performed.
Section	Image process (ICU)
Item	Picture quality Color balance
Operation/ Procedure	1. Select the color to be adjusted with the color key (K/C/M/Y). 2. Select the adjustment point with the scroll key. 3. Enter the adjustment value of the selected point with the 10-key and press the [OK] key. (The entered value is set.)

(Items to be set)

Display		Min. Value	Max. Value	Default
A ↓ O	POINT1 ↓ POINT15	245 ↓ 245	755 ↓ 755	500 ↓ 500


TEST SIMULATION NO.46-20

ENGINE COLOR BALANCE MANUAL ADJUSTMENT [ALL(COLOR)]

A: 500

[245 ~ 755]

A : 500 ; POINT1

B : 500 ; POINT2

C : 500 ; POINT3

D : 500 ; POINT4

46 -21

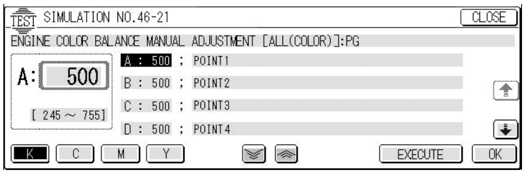
Purpose	Adjustment
Function (Purpose)	Used to adjust copy color balance (All color copy mode gamma/density adjustment) (All color copy mode color balance/gamma/density are changed.)
Section	Image process (ICU)
Item	Picture quality Color balance
Operation/ Procedure	1. Select the color to be adjusted with the color key (K/C/M/Y).

2. Select the adjustment point with the scroll key.
3. Enter the adjustment value of the selected point with the 10-key and press the [OK] key. (The entered value is set.)

When the [EXECUTE] key is pressed, the color balance adjustment check pattern corresponding to the entered adjustment value is printed.

(Items to be set)

Display		Min. Value	Max. Value	Default
A ↓ O	POINT1 ↓ POINT15	245 ↓ 245	755 ↓ 755	500 ↓ 500


TEST SIMULATION NO.46-21

ENGINE COLOR BALANCE MANUAL ADJUSTMENT [ALL(COLOR)]:PG

A: 500

[245 ~ 755]

A : 500 ; POINT1

B : 500 ; POINT2

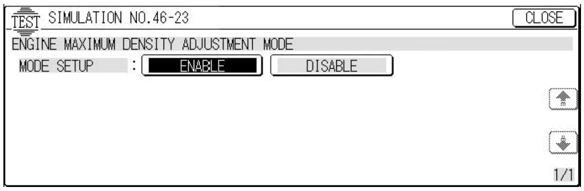
C : 500 ; POINT3

D : 500 ; POINT4

46 -23

Purpose	Setting
Function (Purpose)	Used to set Enable/Disable of half-tone high-density correction.
Item	Picture quality Color balance
Operation/ Procedure	[ENABLE]: Correction is enabled. [DISABLE]: Correction is disabled. Default set: DISABLE

When tone gap occurs in the high density area in the photo copy mode, set this function to ENABLE, and the max. density level will fall, reducing tone gap.


TEST SIMULATION NO.46-23

ENGINE MAXIMUM DENSITY ADJUSTMENT MODE

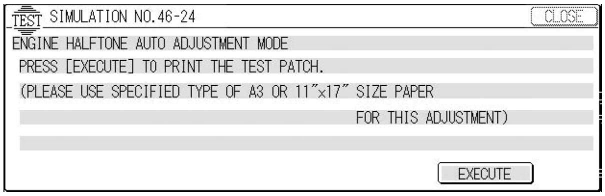
MODE SETUP : ENABLE DISABLE

46 -24

Purpose	Adjustment
Function (Purpose)	Used to adjust the copy color balance automatically. (All color copy mode gamma/density adjustment)
Item	Picture quality Color balance
Operation/ Procedure	1. Press the [EXECUTE] key. (A3 or 11 x 17 paper is automatically selected.) The color patch image (adjustment pattern) is printed.

2. Set the color patch image printed in procedure 1 on the document table.
3. Press the FACTORY key on the operation panel, and press the [EXECUTE] key.
   The copy color balance adjustment (step 1) is automatically performed and the color balance check patch image is printed.
4. Press the REPEAT key on the operation panel.
5. Press the [EXECUTE] key.
   The color patch image (adjustment pattern) is printed.
6. Set the color patch image (adjustment pattern) printed in procedure 5 on the document table. (Place the darker patch on the left side.)
7. Press the FACTORY key on the operation panel, and press the [EXECUTE] key.
   The copy color balance adjustment (step 2) is automatically performed and the color balance check patch image is printed.
8. Press the [OK] key on the operation panel.

The initial setting of the half-tone image correction is performed according to this adjustment data.


TEST SIMULATION NO.46-24

ENGINE HALFTONE AUTO ADJUSTMENT MODE

PRESS [EXECUTE] TO PRINT THE TEST PATCH.

(PLEASE USE SPECIFIED TYPE OF A3 OR 11″x17″ SIZE PAPER FOR THIS ADJUSTMENT)

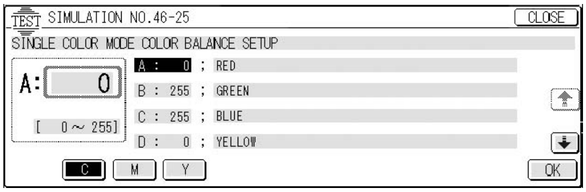
46 -25

Purpose	Adjustment
Function (Purpose)	Used to adjust copy color balance (Single color mode)
Section	Image process (ICU)
Item	Picture quality Color balance
Operation/ Procedure	1. Select the color to be adjusted with the color key (C/M/Y).

2. Select the adjustment point with the scroll key.
3. Enter the adjustment value of the selected point with the 10-key and press the [OK] key. (The entered value is set.)

(Items to be set)

Display		Min. Value	Max. Value	Default		
				C	M	Y
A	RED	0	255	0	255	255
B	GREEN	0	255	255	0	255
C	BLUE	0	255	255	255	0
D	YELLOW	0	255	0	0	255
E	MAGENTA	0	255	0	255	0
F	CYAN	0	255	255	0	0


SIMULATION NO.46-25
SINGLE COLOR MODE COLOR BALANCE SETUP
A: 0
[0 ~ 255]
A : 0 ; RED
B : 255 ; GREEN
C : 255 ; BLUE
D : 0 ; YELLOW

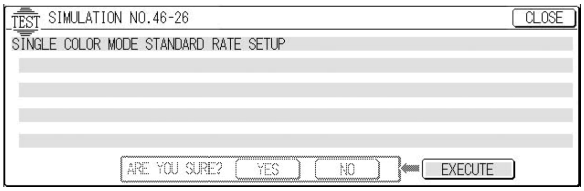
46 -26

Purpose	Adjustment
Function (Purpose)	Used to set the copy color balance adjustment to the default. (Single color copy mode)
Section	Image process (ICU)
Item	Picture quality Color balance
Operation/ Procedure	1. Press the [EXECUTE] key. (YES/NO keys are displayed.)

2. Press the [YES] key, and the copy color balance is set to the default. (Press the [NO] key to cancel.)

(Standard value reset items)

1. RED setup ratio
2. GREEN setup ratio
3. BLUE setup ratio
4. YELLOW setup ratio
5. MAGENTA setup ratio
6. CYAN setup ratio


SIMULATION NO.46-26
SINGLE COLOR MODE STANDARD RATE SETUP
ARE YOU SURE?

46 -27

Purpose	Adjustment
Function (Purpose)	Used to adjust the gamma/density in the black edge section of the copy mode image. (Black text and black line reproduction adjustment)
Section	Image process (ICU)
Item	Picture quality Color balance
Operation/ Procedure	1. Select the color to be adjusted with the color key (C/M/Y).

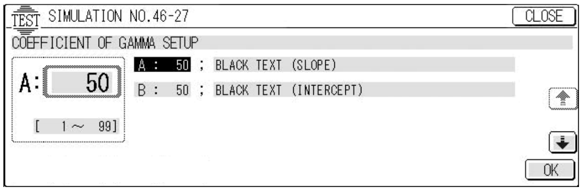
2. Select the adjustment item with the scroll key.
3. Enter the adjustment value of the selected point with the 10-key and press the [OK] key. (The entered value is set.)

Text and line edge area reproduction is adjusted by changing the gamma and the overall density level in the image edge section. For especially thin text, the boldness of lines is changed.

The greater the adjustment value is, the higher the image density in the edge area is, and vice versa.

(Items to be set)

Display		Content	Min. Value	Max. Value	Default
A	BLACK TEXT (SLOPE)	Black image edge section gamma (tilt) adjustment (Black text and black line reproduction adjustment)	1	99	50
B	BLACK TEXT (INTERCEPT)	Black image edge section density (overall level) adjustment (Black text and black line reproduction adjustment)	1	99	50


SIMULATION NO.46-27
COEFFICIENT OF GAMMA SETUP
A: 50
[1 ~ 99]
A : 50 ; BLACK TEXT (SLOPE)
B : 50 ; BLACK TEXT (INTERCEPT)

46 -40

Purpose	Adjustment
Function (Purpose)	Collective adjustment of FAX mode (all modes) document scan density (when FAX is installed)
Section	ICU PWB/FAX
Item	Picture quality
Operation/ Procedure	The print densities of all the modes (FAX modes) can be collectively and uniformly changed with the adjusted density level of each mode (normal, fine text, super fine, ultra fine) as the start point.

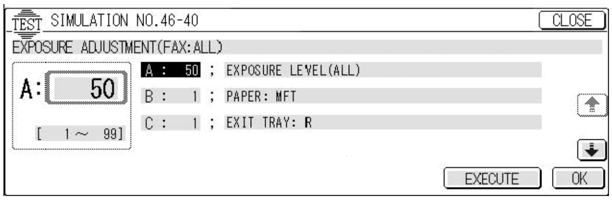
1. Select the print density adjustment mode with the scroll key.
2. Enter the adjustment value with the 10-key, and press [OK] key.
   The adjustment value is set.
3. Set the print condition with the scroll key and the 10-key.
4. Set a document and press [EXECUTE] key.

The document is scanned at the density level set in procedure 2 and it is printed.

(Item to be set)

	Item		Set range	Default
A	AUTO	Exposure data value (Collective)	1 to 99	50
B	PAPER	Print execution cassette selection	1 to 6 *1	2
C	EXIT TRAY	Paper exit tray selection	1 to 2 *2	2

*1: 1: MFT 2: CS1 3: CS2 4: CS3 5: CS4 6: LCC
*2: 1: R 2: S



SIMULATION NO.46-40

EXPOSURE ADJUSTMENT(FAX:ALL)

A: 50

[1～ 99]

A : 50 ; EXPOSURE LEVEL(ALL)
B : 1 ; PAPER: MFT
C : 1 ; EXIT TRAY: R

46 -41

Purpose	Adjustment
Function (Purpose)	Used to adjust the FAX mode (normal mode) document scan density (when the FAX is installed).
Section	ICU PWB/FAX
Item	Picture quality
Operation/ Procedure	1. Select the print density adjustment mode with the scroll key.

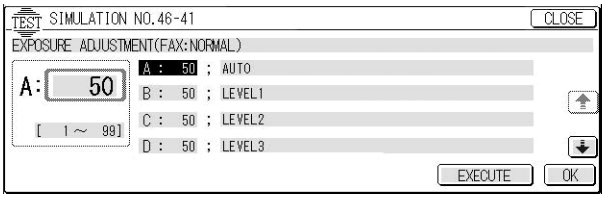
2. Enter the adjustment value with the 10-key, and press [OK] key.
   The adjustment value is set.
3. Set the print condition with the scroll key and the 10-key.
4. Set a document and press [EXECUTE] key.

The document is scanned at the density level set in procedure 2 and it is printed.

(Item to be set)

	Item		Set range	Default
A	AUTO	Automatic	1 to 99	50
B	LEVEL1	Manual level 1	1 to 99	50
C	LEVEL2	Manual level 2	1 to 99	50
D	LEVEL3	Manual level 3	1 to 99	50
E	LEVEL4	Manual level 4	1 to 99	50
F	LEVEL5	Manual level 5	1 to 99	50
G	EXECUTE MODE	Print mode	1 to 6 *1	1
H	PAPER	Print execution cassette selection	1 to 6 *2	2
I	EXIT TRAY	Paper exit tray selection	1 to 2 *3	1

*1: 1: AUTO 2: LEVEL1 3: LEVEL2 4: LEVEL3 5: LEVEL4
6: LEVEL5
*2: 1: MFT 2: CS1 3: CS2 4: CS3 5: CS4 6: LCC
*3: 1: R 2: S



SIMULATION NO.46-41

EXPOSURE ADJUSTMENT(FAX:NORMAL)

A: 50

[1～ 99]

A : 50 ; AUTO
B : 50 ; LEVEL1
C : 50 ; LEVEL2
D : 50 ; LEVEL3

46 -42

Purpose	Adjustment
Function (Purpose)	Used to adjust the FAX mode (fine text mode) document scan density (when the FAX is installed).
Section	ICU PWB/FAX
Item	Picture quality
Operation/ Procedure	1. Select the print density adjustment mode with the scroll key.

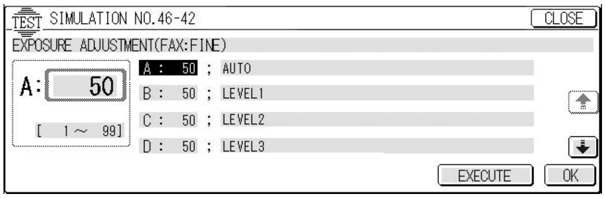
2. Enter the adjustment value with the 10-key, and press [OK] key.
   The adjustment value is set.
3. Set the print condition with the scroll key and the 10-key.
4. Set a document and press [EXECUTE] key.

The document is scanned at the density level set in procedure 2 and it is printed.

(Item to be set)

	Item		Set range	Default
A	AUTO	Fine text/Auto/ Without half-tone	1 – 99	50
B	LEVEL1	Fine text/ Manual level 1/ Without half-tone	1 – 99	50
C	LEVEL2	Fine text/ Manual level 2/ Without half-tone	1 – 99	50
D	LEVEL3	Fine text/ Manual level 3/ Without half-tone	1 – 99	50
E	LEVEL4	Fine text/ Manual level 4/ Without half-tone	1 – 99	50
F	LEVEL5	Fine text/ Manual level 5/ Without half-tone	1 – 99	50
G	AUTO (HALF TONE)	Fine text/Auto/With half-tone	1 – 99	50
H	LEVEL1 (HALF TONE)	Fine text/ Manual level 1/ With half-tone	1 – 99	50
I	LEVEL2 (HALF TONE)	Fine text/ Manual level 2/ With half-tone	1 – 99	50
J	LEVEL3 (HALF TONE)	Fine text/ Manual level 3/ With half-tone	1 – 99	50
K	LEVEL4 (HALF TONE)	Fine text/ Manual level 4/ With half-tone	1 – 99	50
L	LEVEL5 (HALF TONE)	Fine text/ Manual level 5/ With half-tone	1 – 99	50
M	EXECUTE MODE	Print mode	1 – 12 *1	1
N	PAPER	Print execution cassette selection	1 – 6 *2	2
O	EXIT TRAY	Paper exit tray selection	1 – 2 *3	1

*1: 1: AUTO 2: LEVEL1 3: LEVEL2 4: LEVEL3
5: LEVEL4 6: LEVEL5 7: AUTO (HALF TONE)
8: LEVEL1 (HALF TONE) 9: LEVEL2 (HALF TONE)
10: LEVEL3 (HALF TONE) 11: LEVEL4 (HALF TONE)
12: LEVEL5 (HALF TONE)
*2: 1: MFT 2: CS1 3: CS2 4: CS3 5: CS4 6: LCC
*3: 1: R 2: S



SIMULATION NO.46-42

EXPOSURE ADJUSTMENT(FAX:FINE)

A: 50

[1～ 99]

A : 50 ; AUTO
B : 50 ; LEVEL1
C : 50 ; LEVEL2
D : 50 ; LEVEL3

46 -43

Purpose	Adjustment
Function (Purpose)	Used to adjust the FAX mode (super fine mode) document scan density (when the FAX is installed).
Section	ICU PWB/FAX
Item	Picture quality
Operation/ Procedure	1. Select the print density adjustment mode with the scroll key. 2. Enter the adjustment value with the 10-key, and press [OK] key. The adjustment value is set. 3. Set the print condition with the scroll key and the 10-key. 4. Set a document and press [EXECUTE] key. The document is scanned at the density level set in procedure 2 and it is printed.

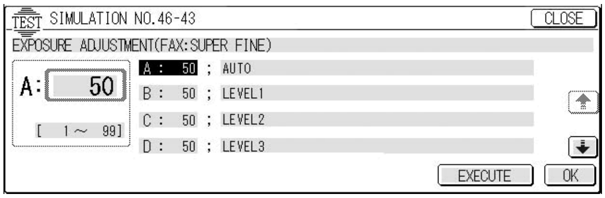
(Item to be set)

	Item		Set range	Default
A	AUTO	Super fine/ Auto/ Without half-tone	1 – 99	50
B	LEVEL1	Super fine/ Manual level 1/ Without half-tone	1 – 99	50
C	LEVEL2	Super fine/ Manual level 2/ Without half-tone	1 – 99	50
D	LEVEL3	Super fine/ Manual level 3/ Without half-tone	1 – 99	50
E	LEVEL4	Super fine/ Manual level 4/ Without half-tone	1 – 99	50
F	LEVEL5	Super fine/ Manual level 5/ Without half-tone	1 – 99	50
G	AUTO (HALF TONE)	Super fine/ Auto/ With half-tone	1 – 99	50
H	LEVEL1 (HALF TONE)	Super fine/ Manual level 1/ With half-tone	1 – 99	50
I	LEVEL2 (HALF TONE)	Super fine/ Manual level 2/ With half-tone	1 – 99	50
J	LEVEL3 (HALF TONE)	Super fine/ Manual level 3/ With half-tone	1 – 99	50
K	LEVEL4 (HALF TONE)	Super fine/ Manual level 4/ With half-tone	1 – 99	50
L	LEVEL5 (HALF TONE)	Super fine/ Manual level 5/ With half-tone	1 – 99	50
M	EXECUTE MODE	Print mode	1 – 12 [*1]	1
N	PAPER	Print execution cassette selection	1 – 6 [*2]	2
O	EXIT TRAY	Paper exit tray selection	1 – 2 [*3]	1

[*1] 1: AUTO 2: LEVEL1 3: LEVEL2 4: LEVEL3
5: LEVEL4 6: LEVEL5 7: AUTO (HALF TONE)
8: LEVEL1 (HALF TONE) 9: LEVEL2 (HALF TONE)
10: LEVEL3 (HALF TONE) 11: LEVEL4 (HALF TONE)
12: LEVEL5 (HALF TONE)

[*2] 1: MFT 2: CS1 3: CS2 4: CS3 5: CS4 6: LCC

[*3] 1: R 2: S



EXPOSURE ADJUSTMENT(FAX:SUPER FINE)

A: 50
[1～ 99]

A : 50 ; AUTO
B : 50 ; LEVEL1
C : 50 ; LEVEL2
D : 50 ; LEVEL3

46 -44

Purpose	Adjustment
Function (Purpose)	Used to adjust the FAX mode (ultra-fine mode) document scan density (when the FAX is installed).
Section	ICU PWB/FAX
Item	Picture quality
Operation/ Procedure	1. Select the print density adjustment mode with the scroll key. 2. Enter the adjustment value with the 10-key, and press [OK] key. The adjustment value is set. 3. Set the print condition with the scroll key and the 10-key. 4. Set a document and press [EXECUTE] key. The document is scanned at the density level set in procedure 2 and it is printed.

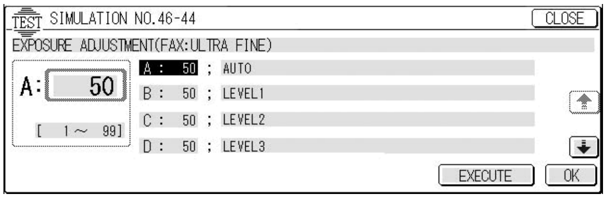
(Item to be set)

	Item		Set range	Default
A	AUTO	Ultra-fine/ Auto/ Without half-tone	1 – 99	50
B	LEVEL1	Ultra-fine/ Manual level 1/ Without half-tone	1 – 99	50
C	LEVEL2	Ultra-fine/ Manual level 2/ Without half-tone	1 – 99	50
D	LEVEL3	Ultra-fine/ Manual level 3/ Without half-tone	1 – 99	50
E	LEVEL4	Ultra-fine/ Manual level 4/ Without half-tone	1 – 99	50
F	LEVEL5	Ultra-fine/ Manual level 5/ Without half-tone	1 – 99	50
G	AUTO (HALF TONE)	Ultra-fine/ Auto/ With half-tone	1 – 99	50
H	LEVEL1 (HALF TONE)	Ultra-fine/ Manual level 1/ With half-tone	1 – 99	50
I	LEVEL2 (HALF TONE)	Ultra-fine/ Manual level 2/ With half-tone	1 – 99	50
J	LEVEL3 (HALF TONE)	Ultra-fine/ Manual level 3/ With half-tone	1 – 99	50
K	LEVEL4 (HALF TONE)	Ultra-fine/ Manual level 4/ With half-tone	1 – 99	50
L	LEVEL5 (HALF TONE)	Ultra-fine/ Manual level 5/ With half-tone	1 – 99	50
M	EXECUTE MODE	Print mode	1 – 12 [*1]	1
N	PAPER	Print execution cassette selection	1 – 6 [*2]	2
O	EXIT TRAY	Paper exit tray selection	1 – 2 [*3]	1

[*1] 1: AUTO 2: LEVEL1 3: LEVEL2 4: LEVEL3
5: LEVEL4 6: LEVEL5 7: AUTO (HALF TONE)
8: LEVEL1 (HALF TONE) 9: LEVEL2 (HALF TONE)
10: LEVEL3 (HALF TONE) 11: LEVEL4 (HALF TONE)
12: LEVEL5 (HALF TONE)

[*2] 1: MFT 2: CS1 3: CS2 4: CS3 5: CS4 6: LCC

[*3] 1: R 2: S



EXPOSURE ADJUSTMENT(FAX:ULTRA FINE)

A: 50
[1～ 99]

A : 50 ; AUTO
B : 50 ; LEVEL1
C : 50 ; LEVEL2
D : 50 ; LEVEL3

48

48 -1

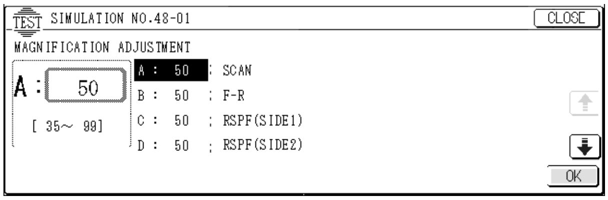
Purpose	Adjustment
Function (Purpose)	Used to adjust the copy magnification ratio (main scanning,/sub scanning direction, document feeder unit front surface, document feeder unit back surface).
Item	Picture quality Size/magnification ratio
Operation/ Procedure	1. Select the adjustment mode with the scroll key. 2. Enter the adjustment value with the 10-eky and press the [OK] key to set the entered value.

a. Sub scanning direction magnification ratio adjustment: By changing the scanning speed in the paper transport direction, the print magnification of images in the paper transport direction is adjusted.
[Adjustment range]: 35 – 99 (Default: 50)

b. Main scanning direction magnification ratio adjustment. The print magnification ratio in the vertical direction of images (vertical to the paper transport direction) is adjusted by software in the (F/R) image process section.
[Adjustment range]: 1 – 99 (Default: 50)

c. Document feeder unit document front surface magnification ratio adjustment value: (RSPF (SIDE1))
[Adjustment range]: 1 – 99 (Default: 50)

d. Document feeder unit document back surface magnification ratio adjustment value: (RSPF (SIDE2))
[Adjustment range]: 1 – 99 (Default: 50)



SIMULATION NO.48-01
MAGNIFICATION ADJUSTMENT
A : 50
[35~ 99]
A : 50 : SCAN
B : 50 ; F-R
C : 50 ; RSPF(SIDE1)
D : 50 ; RSPF(SIDE2)

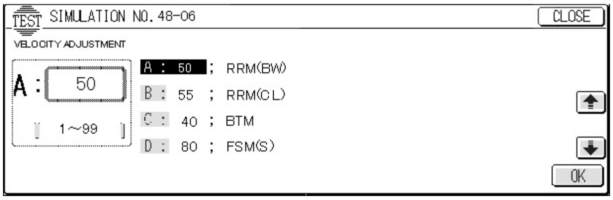
48 -6

Purpose	Adjustment
Function (Purpose)	Used to adjust each motor RPM.
Item	Operation
Operation/ Procedure	1. Select the motor to be adjusted with the scroll key. 2. Enter the adjustment value with the 10-key and press the [OK] key to set the entered value.

(Items to be set)

Item		Content	Set range	Default
A	RRM(BW)	Resist motor monochrome correction value	1 – 99	50
B	RRM(CL)	Resist motor color correction value	1 – 99	50
C	BTM	Belt motor correction value	1 – 99	44
D	FSM(S)	Fusing motor correction value (Normal paper small size: length 420mm or less)	1 – 99	80
E	DM(BW)	Drum motor monochrome correction value	1 – 99	80
F	DM(CL)	Drum motor color correction values	1 – 99	60
G	PFM_CS (TRAY)	Paper feed motor correction value (Main unit cassette paper feed)	1 – 99	55
H	PFM_MAN	Paper feed motor correction value (Manual cassette paper feed)	1 – 99	80
I	FSM(L)	Fusing motor correction value (Normal paper large size: length 420mm or above)	1 – 99	85
J	FSM(FSM (HEAVY PAPER))	Fusing motor correction value (Heavy paper feed)	1 – 99	85
K	FSM(ENV)	Fusing motor correction value (Postcard paper feed)	1 – 99	70
L	PFM_CS (DESK)	Paper feed motor correction value (Desk paper feed)	1 – 99	55
M	PFM_CS (ADU)	Paper feed motor correction value (ADU paper feed)	1 – 99	55
N	PFM_CS (LCC)	Paper feed motor correction value (LCC paper feed)	1 – 99	55

* FSM (L): A3W, A3, WLT, EXTRA, USER EXTRA (paper length of 420mm or more)

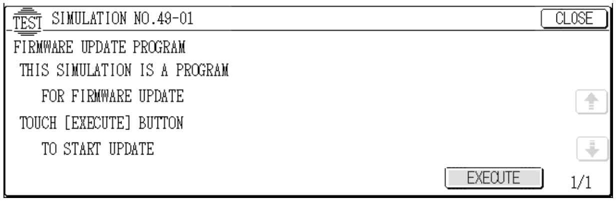


SIMULATION NO. 48-06
VELOCITY ADJUSTMENT
A : 50
[1~99]
A : 50 ; RRM(BW)
B : 55 ; RRM(CL)
C : 40 ; BTM
D : 80 ; FSM(S)

49

49 -1

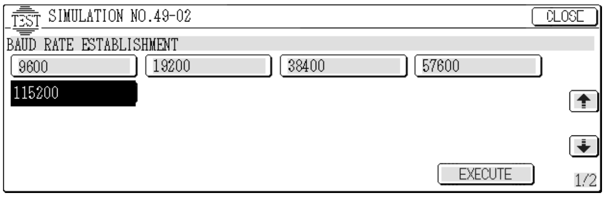
Purpose	Version up
Function (Purpose)	Used for firmware version up (Machine/FAX).
Section	Firmware (Machine/FAX)
Item	Operation
Operation/ Procedure	1. Press the [EXECUTE] key to enter the Flash ROM writing mode. 2. Start the download program on the PC side and perform Flash ROM writing.



SIMULATION NO.49-01
FIRMWARE UPDATE PROGRAM
THIS SIMULATION IS A PROGRAM
FOR FIRMWARE UPDATE
TOUCH [EXECUTE] BUTTON
TO START UPDATE

49 -2

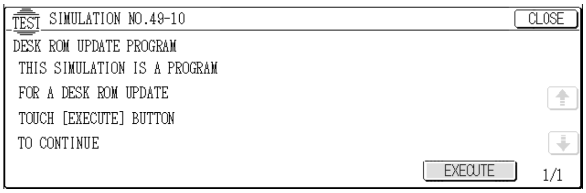
Purpose	Version up
Function (Purpose)	Used to set the data communication speed in version up of the machine firmware.
Section	Firmware
Item	Operation
Operation/ Procedure	Press the key corresponding to the data communication speed on the PC side. Unit (bps: bit per second)


SIMULATION NO.49-02

BAUD RATE ESTABLISHMENT

49 -10

Purpose	Version up
Function (Purpose)	Used for firmware version up (Desk unit).
Section	Firmware (Desk unit)
Item	Operation
Operation/ Procedure	1. Press the [EXECUTE] key to enter the Flash ROM writing mode. 2. Start the download program on the PC side and perform Flash ROM writing.


SIMULATION NO.49-10

DESK ROM UPDATE PROGRAM
THIS SIMULATION IS A PROGRAM
FOR A DESK ROM UPDATE
TOUCH [EXECUTE] BUTTON
TO CONTINUE

50

50 -1

Purpose	Adjustment
Function (Purpose)	Used to adjust the copy image position and the void area (image loss) on print paper in the copy mode. (The similar adjustment can be made also by SIM 50-2 (Simple method).)
Item	Picture quality Image position
Operation/ Procedure	1. Select the adjustment item with the scroll key. 2. Enter the adjustment value with the 10-key. 3. Press the [OK] key.

Display		Content	Min. Value	Max. Value	Default
A	RRC-A	Document lead edge reference position	1	80	50
B	RRC-B	Paper lead edge position	1	99	50
C	DEN-A	Lead edge void area	1	99	40
D	DEN-B	Rear edge void area	1	99	40
E	IMAGE LOSS	Lead edge image loss	0	99	40

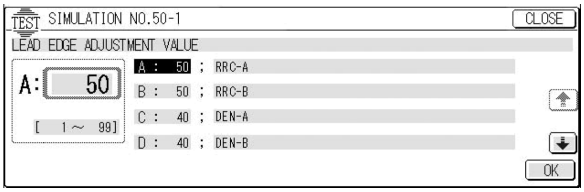
A. Document lead edge reference position --- (RRC-A) This set value is used to adjust timing from when the document scanning is started to when the image lead edge signal
(Set range: 1 – 30) (Default value: 50)

B. Paper lead edge position --- (RRC-B) Used to adjust timing of turning on the resist roller after receiving the resist signal (LD_START).
(Set range: 1 – 99) (Default value: 50)

C. Lead edge void area --- (DEN-A) Used to specify the void area at the lead edge of the document.
(Set range: 1=99) (Default value: 40)

D. Rear edge void area --- (DEN-B) Used to specify the void area at the rear edge of the document.
(Set range: 1 – 99) (Default value: 30)

E. Lead edge image loss --- (IMAGE LOSS) Used to specify the image loss.
(Set range: 0~99) (Default value: 40)


SIMULATION NO.50-1

LEAD EDGE ADJUSTMENT VALUE

A: 50

[1～ 99]

A : 50 ; RRC-A
B : 50 ; RRC-B
C : 40 ; DEN-A
D : 40 ; DEN-B

50 -2

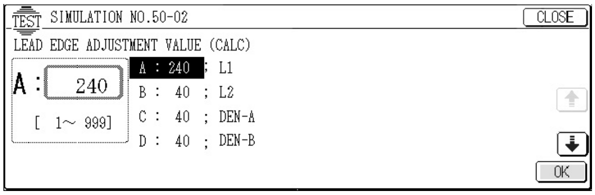
Purpose	Adjustment
Function (Purpose)	Used to adjust the copy image position and the void area (image loss) on print paper in the copy mode. (Simple method) (The same content of SIM 50-1. However this simulation is easier to perform.)
Item	Picture quality Image position
Operation/ Procedure	1. Select the adjustment item with the scroll key. 2. Enter the adjustment value with the 10-key. 3. Press the [OK] key.

This simulation is used to perform the lead edge adjustment by directly entering the lead edge shift in 400% copy.

Display		Content	Min. Value	Max. Value	Default
A	L1	Document lead edge reference position	1	999	240
B	L2	Paper lead edge position	1	999	40
C	DEN-A	Lead edge void area	1	99	40
D	DEN-B	Rear edge void area	1	99	40
E	IMAGE LOSS	Document lead edge image loss adjustment value	1	99	40

(Default values)

A. Document lead edge reference position --- (L1) 240
B. Paper lead edge position --- (L2) 40
C. Lead edge void area --- (DEN-A) 40
D. Rear edge void area --- (DEN-B) 40
E. IMAGE LOSS --- 40


SIMULATION NO.50-02

LEAD EDGE ADJUSTMENT VALUE (CALC)

A : 240

[1～ 999]

A : 240 ; L1
B : 40 ; L2
C : 40 ; DEN-A
D : 40 ; DEN-B

50 -5

Purpose	Adjustment
Function (Purpose)	Used to adjust the image position and print area in the sub scanning direction. (Print engine section)
Section	ICU/Printer
Item	Picture quality
Operation/ Procedure	1. Select the adjustment mode (DEN-B/DEN-C) with the scroll key.

2. Enter the adjustment value of the selected point with the 10-key, and press the [OK] key. (The entered adjustment value is set. The [EXECUTE] key or the scroll key can be used instead of the [OK] key in the above procedure.)
3. Select the paper feed mode.
4. Press the [EXECUTE] key.

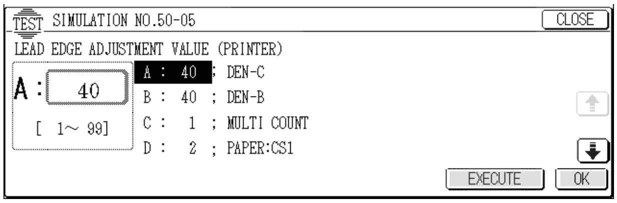
The test pattern corresponding to the entered adjustment value is printed.

When the adjustment value of item A (DEN-C) is decreased by 1, the print start position in the sub scanning direction shifts 0.125mm toward the paper lead edge.

When the adjustment value of item B (DEN-B) is decreased by 1, the print start position in the sub scanning direction shifts 0.125mm toward the paper rear edge.

(Descriptions on Set values)

Display		Content	Min. Value	Max. Value	Default
A	DEN-C	Sub scanning print lead edge adjustment	1	99	40
B	DEN-B	Sub scanning print area adjustment	1	99	40
C	MULTI COUNT	Print quantity	1	999	1
D	PAPER	Paper feed tray selection (MFT, CS1, CS2, CS3, CS4, LCC)	1	6	2 (CS1)
E	EXIT TRAY	Paper exit tray selection (R, S)	1	2	1 (R)
F	DUPLEX	Duplex print selection (NO, YES)	1	2	1 (NO)



SIMULATION NO.50-05

LEAD EDGE ADJUSTMENT VALUE (PRINTER)

A : 40

[1～ 99]

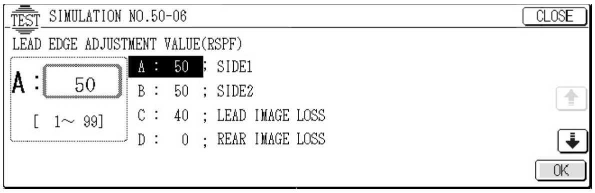
A : 40 ; DEN-C
B : 40 ; DEN-B
C : 1 ; MULTI COUNT
D : 2 ; PAPER:CS1

50 -6

Purpose	Adjustment
Function (Purpose)	Used to adjust the document lead edge and image loss quantity of the document feeder unit.
Section	Automatic document feeder
Operation/ Procedure	1. Select an adjustment item with the scroll key. 2. Enter the adjustment value of the item selected with the scroll key, and press [OK] key. (The adjustment value is set. It is set also when the scroll key is pressed.)

(Descriptions on Set values)

Display		Content	Min. Value	Max. Value	Default
A	SIDE1	Document feeder unit front surface scan lead edge adjustment	1	99	50
B	SIDE2	Document feeder unit back surface scan lead edge adjustment	1	99	50
C	LEAD IMAGE LOSS	RSPF lead edge image loss quantity adjustment	0	99	40
D	REAR IMAGE LOSS	RSPF rear edge image loss quantity adjustment	0	99	0



SIMULATION NO.50-06

LEAD EDGE ADJUSTMENT VALUE(RSPF)

A : 50

[1～ 99]

A : 50 ; SIDE1
B : 50 ; SIDE2
C : 40 ; LEAD IMAGE LOSS
D : 0 ; REAR IMAGE LOSS

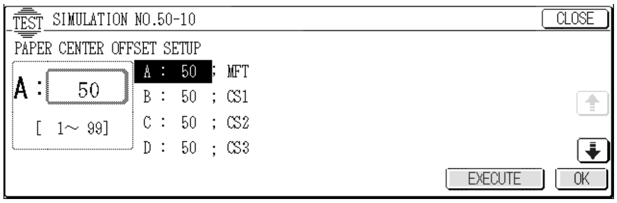
50 -10

Purpose	Adjustment
Function (Purpose)	Used to adjust the print image center position. (Adjustment is performed in each paper feed position separately.)
Section	Image process (ICU)
Item	Picture quality Image position
Operation/ Procedure	1. Select the adjustment mode (DEN-B/DEN-C) with the scroll key.

2. Enter the adjustment value of the selected point with the 10-key, and press the [OK] key. (The entered adjustment value is set. The [EXECUTE] key or the scroll key can be used instead of the [OK] key in the above procedure.)
3. Press the [EXECUTE] key. The test pattern corresponding to the entered adjustment value is printed.

Display		Content	Set range	Default
A	MFT	Print off-center adjustment value (Manual paper feed)	1 – 99	50
B	CS1	Print off-center adjustment value (1 cassette)	1 – 99	50
C	CS2	Print off-center adjustment value (2 cassette)	1 – 99	50
D	CS3	Print off-center adjustment value (3 cassette)	1 – 99	50
E	CS4	Print off-center adjustment value (4 cassette)	1 – 99	50
F	LCC	Print off-center adjustment value (LCC)	1 – 99	50
G	ADU	Print off-center adjustment value (ADU)	1 – 99	50
H	MULTI COUNT	Print quantity	1 – 999	1
I	PAPER	Paper feed tray selection (MFT, CS1, CS2, CS3, CS4, LCC)	1 – 6	2 (CS1)
J	EXIT TRAY	Paper exit tray selection (R, S)	1 or 2	1
K	DUPLEX	Duplex print selection (NO, YES)	1 or 2	1

- When the adjustment value of items A~G is decreased by 1, the main scanning print position shifts 0.1mm toward the front side.
- When the adjustment value of items A~G is increased by 1, the main scanning print position shifts 0.1mm toward the rear side.
- To execute item G (ADU adjustment), the ADU must be installed. In this case, item K (DUPLEX) must be set to 2.



SIMULATION NO.50-10

PAPER CENTER OFFSET SETUP

A : 50

[1～ 99]

A : 50 ; MFT
B : 50 ; CS1
C : 50 ; CS2
D : 50 ; CS3

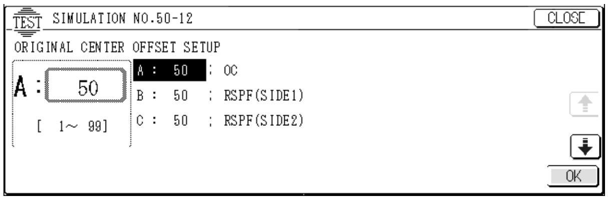
50 -12

Purpose	Adjustment
Function (Purpose)	Used to adjust the document off-center position. (Adjusted separately by each document mode.)
Section	Image process (ICU)
Item	Picture quality Image position
Operation/ Procedure	1. Select a document mode with the scroll key. 2. Enter the adjustment value with the 10-key and press the [OK] key to set the entered value.

* When the set value is increased, the main scan print position is shifted to the front side by 0.1mm.

(Items to be set)

Display		Content	Min. Value	Max. Value	Default
A	OC	Platen mode (Document table)	1	99	50
B	RSPF (SIDE1)	Document feeder unit front surface document off-center adjustment	1	99	50
C	RSPF (SIDE2)	Document feeder unit back surface off-center adjustment	1	99	50



SIMULATION NO.50-12

ORIGINAL CENTER OFFSET SETUP

A : 50

[1～ 99]

A : 50 : OC

B : 50 ; RSPF(SIDE1)

C : 50 ; RSPF(SIDE2)

50 -20

Purpose	Adjustment
Function (Purpose)	Used to adjust the image registration. (Manual adjustment)
Item	Picture quality Image position
Operation/ Procedure	1. Select the adjustment mode (DEN-B/DEN-C) with the scroll key.

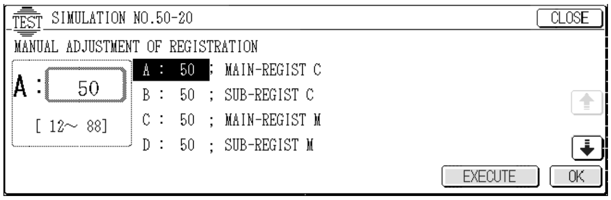
2. Enter the adjustment value of the selected point with the 10-key, and press the [OK] key. (The entered adjustment value is set.)
3. Press the [EXECUTE] key, and the registration adjustment pattern in the main scanning direction is printed.

(Set items)

Display		Content	Min. value	Max. value	Default
A	MAIN-REGIST C	Main scanning direction registration adjustment (C)	12	88	50
B	SUB-REGIST C	Sub scanning direction registration adjustment (C)	1	132	50
C	MAIN-REGIST M	Main scanning direction registration adjustment (M)	12	88	50
D	SUB-REGIST M	Sub scanning direction registration adjustment (M)	1	132	50
E	MAIN-REGIST Y	Main scanning direction registration adjustment (Y)	12	88	50
F	SUB-REGIST Y	Sub scanning direction registration adjustment (Y)	1	132	50
G	MULTI COUNT	Adjustment pattern print quantity	1	999	1
H	PAPER	Paper feed tray selection 8MFT, CS1, CS2, CS3, CS4, LCC)	1	6	2 (CS1)
I	EXIT TRAY	Paper exit tray selection (R, S)	1	2	1 (R)
J	DUPLEX	Duplex print selection (NO, YES)	1	2	1 (NO)

∗ When the adjustment value of items A, C, and E is decreased by 1, the adjustment target color image shifts by one pixel in the main scanning direction.

∗ When the adjustment value of items B, D, and E is decreased by 1, the adjustment target color image shifts by one pixel in the sub scanning direction.



SIMULATION NO.50-20

MANUAL ADJUSTMENT OF REGISTRATION

A : 50

[12～ 88]

A : 50 ; MAIN-REGIST C

B : 50 ; SUB-REGIST C

C : 50 ; MAIN-REGIST M

D : 50 ; SUB-REGIST M

50 -22

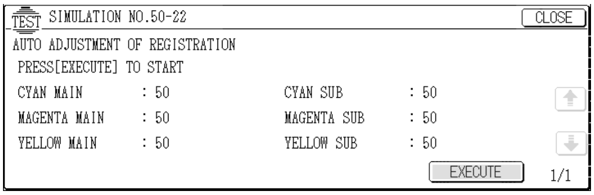
Purpose	Adjustment
Function (Purpose)	Used to adjust the image registration. (Automatic adjustment)
Item	Picture quality
Operation/ Procedure	Press the [EXECUTE] key. The color registration adjustment (automatic adjustment) in the main scanning direction and the sub scanning direction is performed. The process of the adjustment is displayed as follows: "NOW EXECUTING... S[**********]E" When the adjustment is completed, the [EXECUTE] key returns to the normal display. In case of an error, the cause is displayed.

(Display items)

Display	Content	Min. Value	Max. Value	Default
CYAN MAIN	Main scanning direction registration adjustment (C)	12	88	50
CYAN SUB	Main scanning direction registration adjustment (M)	1	132	50
MAGENTA MAIN	Main scanning direction registration adjustment (Y)	12	88	50
MAGENTA SUB	Sub scanning direction registration adjustment (C)	1	132	50
YELLOW MAIN	Sub scanning direction registration adjustment (M)	1	88	50
YELLOW SUB	Sub scanning direction registration adjustment (Y)	1	132	50

Error display	Content
SENSOR_ADJUSTMENT_ERROR	Sensor adjustment abnormality
BLACK_DENSITY_ERROR	Black density error
CYAN_DENSITY_ERROR	Cyan density error
MAGENTA_DENSITY_ERROR	Magenta density error
YELLOW_DENSITY_ERROR	Yellow density error
CYAN_MAIN_FINE_ERROR	Cyan main scanning fine adjustment error
MAGENTA_MAIN_FINE_ERROR	Magenta main scanning fine adjustment error
YELLOW_MAIN_FINE_ERROR	Yellow main scanning fine adjustment error
CYAN_SUB_FINE_ERROR	Cyan sub scanning fine adjustment error
MAGENTA_SUB_FINE_ERROR	Magenta sub scanning fine adjustment error
YELLOW_SUB_FINE_ERROR	Yellow sub scanning fine adjustment error
CYAN_MAIN_ROUGH1_ERROR	Cyan main scanning rough adjustment 1 error
MAGENTA_MAIN_ROUGH1_ERROR	Magenta main scanning rough adjustment 1 error
YELLOW_MAIN_ROUGH1_ERROR	Yellow main scanning rough adjustment 1 error
CYAN_SUB_ROUGH1_ERROR	Cyan sub scanning rough adjustment 1 error
MAGENTA_SUB_ROUGH1_ERROR	Magenta sub scanning rough adjustment 1 error
YELLOW_SUB_ROUGH1_ERROR	Yellow sub scanning rough adjustment 1 error
CYAN_MAIN_ROUGH2_ERROR	Cyan main scanning rough adjustment 2 error
MAGENTA_MAIN_ROUGH2_ERROR	Magenta main scanning rough adjustment 2 error

Error display	Content
YELLOW_MAIN_ROUGH2_ERROR	Yellow main scanning rough adjustment 2 error
CYAN_SUB_ROUGH2_ERROR	Cyan sub scanning rough adjustment 2 error
MAGENTA_SUB_ROUGH2_ERROR	Magenta sub scanning rough adjustment 2 error
YELLOW_SUB_ROUGH2_ERROR	Yellow sub scanning rough adjustment 2 error
OTHERS_ERROR	Other errors



```
SIMULATION NO.50-22
AUTO ADJUSTMENT OF REGISTRATION
 PRESS[EXECUTE] TO START
 CYAN MAIN        : 50          CYAN SUB        : 50
 MAGENTA MAIN     : 50          MAGENTA SUB     : 50
 YELLOW MAIN      : 50          YELLOW SUB      : 50
```

50 -24

Purpose	Adjustment	
Function (Purpose)	Used to display the adjustment data of automatic registration.	
Item	Picture quality	Image position
Operation/ Procedure	When [PARTCH] is selected, the patch scan data in the automatic registration adjustment performed with SIM 50-22 is displayed. When [OTHER] is selected, the sensor calibration data/belt element data in the automatic registration adjustment performed with SIM 50-22 are displayed.	

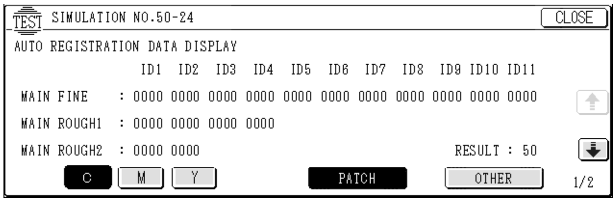
1. Select the color to be set with the color key. (CMY)
2. Select the item to be set with the scroll key.

(Display items)

Display	Content	Min. Value	Max. Value
MAIN FINE	Patch scan data (11 patches) in the main scanning direction fine adjustment	0	9999
MAIN ROUGH1	Patch scan data (4 patches) in the main scanning direction rough adjustment 1	0	9999
MAIN ROUGH2	Patch scan data (2 patches) in the main scanning direction rough adjustment 2	0	9999
RESULT	Current adjustment value	1	132
SUB FINE	Patch scan data (11 patches) in the sub scanning direction fine adjustment	0	9999
SUB ROUGH1	Patch scan data (4 patches) in the sub scanning direction rough adjustment 1	0	9999
SUB ROUGH2	Patch scan data (3 patches) in the sub scanning direction rough adjustment 2	0	9999
SENSOR OUTPUT	Adjusted LED current in sensor calibration	0	255
SENSOR INPUT	Sensor transfer belt surface detection level in sensor calibration	0	255
ERROR RECODE *1	Error history (Latest 5 items)	0	99
DENSITY CHECK K	Toner patch density value (K)	0	9999
DENSITY CHECK C	Toner patch density value (C)	0	9999
DENSITY CHECK M	Toner patch density value (M)	0	9999
DENSITY CHECK Y	Toner patch density value (Y)	0	9999
REGIST COUNT	Registration count (Transfer belt mileage: A4 size is counted as 1.)	0	9999
EXECUTE COUNT	Number of execution (Number of execution / Number of execution condition)	0	9999

*1: Error code and its content

00: No error
01: Belt element defect
02: Insufficient Black patch density
03: Insufficient Cyan patch density
04: Insufficient Magenta patch density
05: Insufficient Yellow patch density
06: Main scanning direction fine adjustment Cyan patch print error
07: Main scanning direction fine adjustment Magenta patch print error
08: Main scanning direction fine adjustment Yellow patch print error
09: Sub scanning direction fine adjustment Cyan patch print error
10: Sub scanning direction fine adjustment Magenta patch print error
11: Sub scanning direction fine adjustment Yellow patch print error
12: Main scanning direction rough adjustment 1 Cyan patch print error
13: Main scanning direction rough adjustment 1 Magenta patch print error
14: Main scanning direction rough adjustment 1 Yellow patch print error
15: Sub scanning direction rough adjustment 1 Cyan patch print error
16: Sub scanning direction rough adjustment 1 Magenta patch print error
17: Sub scanning direction rough adjustment 1 Yellow patch print error
18: Main scanning direction rough adjustment 2 Cyan patch print error
19: Main scanning direction rough adjustment 2 Magenta patch print error
20: Main scanning direction rough adjustment 2 Yellow patch print error
21: Sub scanning direction rough adjustment 2 Cyan patch print error
22: Sub scanning direction rough adjustment 2 Magenta patch print error
23: Sub scanning direction rough adjustment 2 Yellow patch print error
98: Resist sensor adjustment abnormality
99: Other error



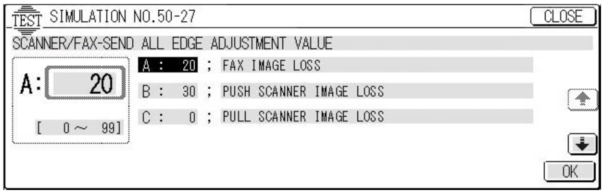
```
SIMULATION NO.50-24
AUTO REGISTRATION DATA DISPLAY
                    ID1  ID2  ID3  ID4  ID5  ID6  ID7  ID8  ID9  ID10 ID11
 MAIN FINE     : 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
 MAIN ROUGH1   : 0000 0000 0000 0000
 MAIN ROUGH2   : 0000 0000                                 RESULT : 50
```

50 -27

Purpose	Adjustment
Function (Purpose)	Used to adjust image loss in the FAX/scanner mode.
Section	FAX/Scanner
Item	Picture quality Image position
Operation/ Procedure	1. Select the adjustment mode with the scroll key. 2. Enter the adjustment value at the selected point, and press the [OK] key. The entered value is set.

When the adjustment value is changed, the image losses at the four corners are changed uniformly.

Display	Content	Min. Value	Max. Value	Default
A	FAX MODE image loss	0	99	20
B	PUSH SCAN MODE image loss	0	99	30
C	PULL SCAN MODE image loss	0	99	0



SIMULATION NO.50-27

SCANNER/FAX-SEND ALL EDGE ADJUSTMENT VALUE

A: 20

[0～ 99]

A : 20 ; FAX IMAGE LOSS
B : 30 ; PUSH SCANNER IMAGE LOSS
C : 0 ; PULL SCANNER IMAGE LOSS

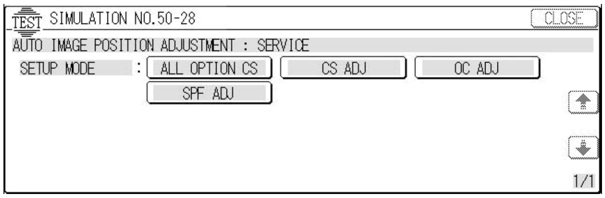
50 -28

Purpose	Adjustment
Function (Purpose)	Used to adjust automatic void (service installation adjustment).
Item	Picture quality Image position
Operation/ Procedure	1. [ALL OPTION CS]: Select "For service installation adjustment." [CS ADJ]: Individual adjustment of cassette [OC ADJ]: OC adjustment [SPF ADJ]: SPF adjustment

2. The self print chart is printed, and the machine is brought into the self print chart scan standby mode.

   [PRINT]: When [AUTO] is selected, the self print for adjustment of CS1 and that for adjustment of MFT are printed. (When [SPF] is selected, the output is made from the currently set cassette.)

3. Select [SCAN], and the outputted self print chart is scanned.
4. Select [FINISH] to display the result display menu.
   [DATA]: The scanned data are displayed.



SIMULATION NO.50-28

AUTO IMAGE POSITION ADJUSTMENT : SERVICE

SETUP MODE :

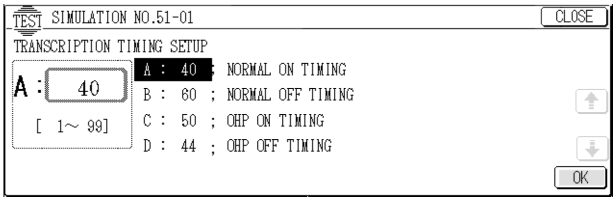
51

51 -01

Purpose	Adjustment
Function (Purpose)	Used to adjust the transfer voltage ON timing.
Section	Process (Photoconductor, developing, transfer, cleaning) Transfer
Item	Operation
Operation/ Procedure	1. Select the adjustment mode with the scroll key. 2. Enter the set value with the 10-key and press the [OK] key to set the entered value.

Item		Description on item	Set range	Default
A	NORMAL ON TIMING	Used to set the transfer ON timing for the paper lead edge except for OHP.	1 – 99	40
B	NORMAL OFF TIMING	Used to set the transfer OFF timing for the paper rear edge except for OHP.	1 – 99	60
C	OHP ON TIMING	Used to set the transfer ON timing for the lead edge of OHP.	1 – 99	40
D	OHP OFF TIMING	Used to set the transfer OFF timing for the rear edge of OHP.	1 – 99	60

- When the set value is 50 at transfer ON timing, the transfer operation is turned on immediately when the paper lead edge passes beneath the drum.
- When the set value is 50 at transfer OFF timing, the transfer operation is turned off immediately when the paper rear edge passes beneath the drum.
- When the transfer ON/OFF timing value is decreased, the transfer ON/OFF timing is advanced for the paper.
- When the transfer ON/OFF timing value is increased, the transfer ON/OFF timing is delayed for the paper.
- Change of ±1 corresponds to about 10ms. The set range is –490 to +490ms



SIMULATION NO.51-01

TRANSCRIPTION TIMING SETUP

A : 40

[1～ 99]

A : 40 ; NORMAL ON TIMING
B : 60 ; NORMAL OFF TIMING
C : 50 ; OHP ON TIMING
D : 44 ; OHP OFF TIMING

51 -02

Purpose	Adjustment
Function (Purpose)	Used to adjust the contact pressure of paper on the resist roller of each section (each paper feed and duplex feed of the copier). (This adjustment is required when the print image position variations are considerably great or when paper jams occur frequently.)
Section	Paper transport (Paper exit, switchback, transport)
Item	Operation
Operation/ Procedure	1. Select the adjustment mode with the scroll key. 2. Enter the set value with the 10-key and press the [OK] key to set the entered value.

(Items to be set)

Display	Content	Min. value	Max. value	Default	Display
A	TRAY (S)	Cassette tray deflection adjustment value	1	99	15
B	LCC	LCC tray deflection adjustment value	1	99	10
C	ADU (S)	ADU/deflection adjustment value (small size)	1	99	30
D	MANUAL PLAIN PAPER (S)	Manual feed tray/ deflection adjustment value (Normal paper, small size)	1	99	50
E	MANUAL HEAVY PAPER1	Manual feed tray/ deflection adjustment value (Heavy paper 1)	1	99	50
F	MANUAL HEAVY PAPER2	Manual feed tray/ deflection adjustment value (Heavy paper 2)	1	99	50
G	MANUAL OHP1	Manual feed tray/ deflection adjustment value (OHP1)	1	99	50
H	MANUAL OHP2	Manual feed tray/ deflection adjustment value (OHP2)	1	99	50
I	MANUAL ENV	Manual feed tray/ deflection adjustment value (Envelope)	1	99	50
J	DESK (S)	Desk tray/deflection adjustment value (Small size)	1	99	30
K	DESK (L)	Desk tray/deflection adjustment value (Normal paper, large size)	1	99	30
L	MANUAL PLAIN PAPER (L)	Manual feed tray/ deflection adjustment value (Normal paper, large size)	1	99	75
M	TRAY (L)	Cassette tray deflection adjustment value (Large size)	1	99	25
N	ADU(L)	ADU deflection adjustment value (Large size)	1	99	30
O	RSPF SIDE1	Document feeder unit front surface document/ deflection quantity adjustment value	1	99	50
P	RSPF SIDE2 (L)	Document feeder unit rear surface document/ deflection quantity adjustment value (Large size)	1	99	50
Q	RSPF SIDE2 (S)	Document feeder unit rear surface document/ deflection quantity adjustment value (Small size)	1	99	50

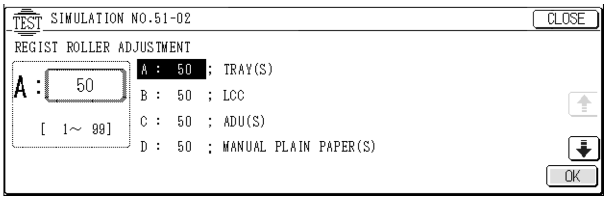
- The smaller the set value is, the smaller the deflection quantity of each specified item is. The greater the set value is, the greater the deflection quantity is.

* Paper size judgment method (Item A to J)
In the cassette tray paper feed, the paper size smaller than 170mm is regarded as the small size.
In the desk tray or ADU paper feed, the paper size of 216mm or smaller is regarded as the small size.
In the manual paper feed tray paper feed, the paper area of 49128mm² (184 x 267) or less is regarded as the small size.

* For the document size judgment of items P and Q in the document feeder unit, 148mm (A5) or smaller is considered as the small size.

* Adjustment unit of items A to N: Time in the unit of 1ms (The reference speed is 117mm/s. Variable according to the speed.)

* Adjustment unit of items O to Q: Distance in the unit of 0.1mm



SIMULATION NO.51-02

REGIST ROLLER ADJUSTMENT

A : 50

[1～ 99]

A : 50 ; TRAY(S)
B : 50 ; LCC
C : 50 ; ADU(S)
D : 50 ; MANUAL PLAIN PAPER(S)

52

52 -01

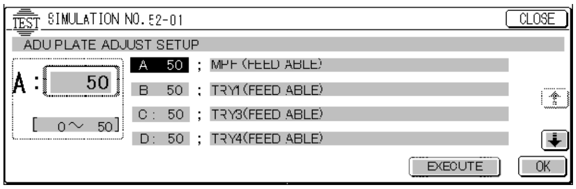
Purpose	Adjustment
Function (Purpose)	Used to adjust the duplex print mode stacking capacity (Used to adjust the stop position of the duplex unit paper tray width alignment plate. The home position of the width alignment plate is changed by software.)
Section	Duplex
Item	Operation
Operation/ Procedure	1. Select the adjustment mode with the scroll key. * When the machine is not ready for paper feed, "NOT READY" is displayed. When the corresponding tray is unable to feed, "FEED UNABLE" is displayed. If it is able to feed, "FEED ABLE" is displayed.

2. Enter the set value with the 10-key and press the [OK] key to set the entered value.
3. Press the [EXECUTE] key.
   * If there is no paper on the duplex tray, one sheet of the selected paper is fed and transported to the duplex tray. Then the entered value in procedure 3 is set and the alignment plate moves according to the home position corresponding to the entered value.
   * The paper sizes which can be used for transport and alignment plate adjustment with SIM52-01 are LT, LTR, A4, A4R, B5, B5R, 16K, and 16KR only. (For the other sizes, "FEED ENABLE" occurs.)

(Set items)

	Item	Set range	Default
A	Intermediate tray alignment plate adjustment value (Manual feed)	0 – 99	50
B	Intermediate tray alignment plate adjustment value (Cassette 1)	0 – 99	50
C	Intermediate tray alignment plate adjustment value (Cassette 3)	0 – 99	50
D	Intermediate tray alignment plate adjustment value (Cassette 4)	0 – 99	50
E	Intermediate tray alignment plate adjustment value (LCC)	0 – 99	50

- When the set value is changed by 1, it is changed by about 0.2mm. When the set value is increased, the alignment plate paper width is narrowed. The adjustment value can be adjusted in the increment of ±50 with 50 as the center value.



SIMULATION NO.52-01

ADU PLATE ADJUST SETUP

A : 50

[0～ 50]

A 50 ; MPF (FEED ABLE)
B 50 ; TRY1(FEED ABLE)
C : 50 ; TRY3(FEED ABLE)
D : 50 ; TRY4(FEED ABLE)

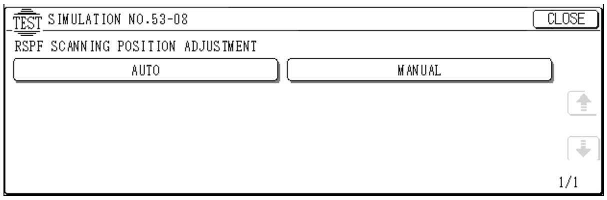
53

53 -08

Purpose	Adjustment
Function (Purpose)	Used to adjust the document feeder unit document scanning position.
Section	Automatic document feeder
Item	Operation
Operation/ Procedure	The automatic or manual adjustment of the document mirror scanning position of the document feeder unit is performed. Press [AUTO] key for the automatic adjustment, and press [MANUAL] for the manual adjustment. [Automatic adjustment] 1. The adjustment value stored in the EEPROM is displayed in "AUTO ADJUST VALUE." 2. When [EXECUTE] key is pressed, the adjustment value is automatically obtained and displayed and saved in the EEPROM at the same time. [Manual adjustment] 1. Enter the set value with the 10-key and press the [OK] key to store the set value.

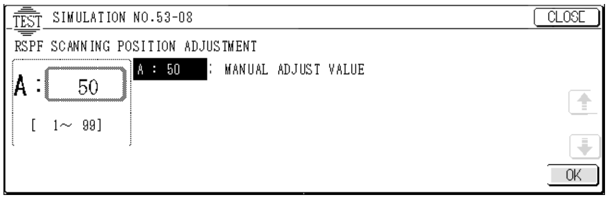
(Set value (for manual adjustment))

	Item	Description	Set range	Default
A	MANUAL ADJUST VALUE	Document feeder unit scanning position adjustment (for manual adjustment)	1 – 99	50


SIMULATION NO.53-08

RSPF SCANNING POSITION ADJUSTMENT

(Manual adjustment display)


SIMULATION NO.53-08

RSPF SCANNING POSITION ADJUSTMENT

A : 50 ; MANUAL ADJUST VALUE

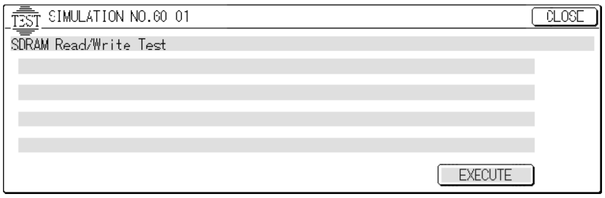
A : 50

[1～ 99]

60

60 -01

Purpose	Operation test/check
Function (Purpose)	Used to check the operation of ICU PWB image DRAM read/write.
Section	ICU (Memory)
Item	Operation
Operation/ Procedure	Press the [EXECUTE] key, and memory read/write operation check is started. After completion of check, the result is displayed with NG or OK.


SIMULATION NO.60 01

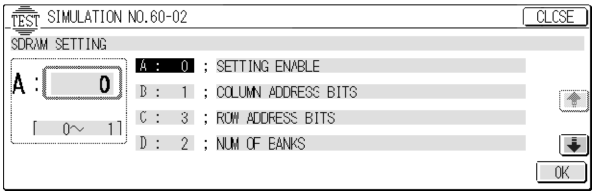
SDRAM Read/Write Test

60 -02

Purpose	Setting
Function (Purpose)	Used to set the onboard SRAM.
Section	SDRAM
Operation/ Procedure	1. Select the adjustment mode with the scroll key. 2. Enter the set value with the 10-key and press the [OK] key to store the set value.

(Set value range and initial value)

Item			Set range	Default
A	SETTING ENABLE	SDRAM setting change flag	0 – 1	0
B	COLUMN ADDRESS BITS	Column address width	0 – 3	1
C	ROW ADDRESS BITS	Row address width	0 – 3	3
D	NUM OF BANKS	Number of banks	0 – 2	2
E	BURST LENGTHS	Burst lengths	0 – 3	3
F	CAS LATENCY	CAS latency	0 – 1	0
G	TRP	Trp	0 – 3	1
H	TRCD	Trcd	0 – 3	1
I	CHIP SELECT TYPE	Chip select type	0 – 1	1
J	CAPACITY	Total capacity	0 – 3	2
K	BUFFER TYPE	Buffer type	0 – 1	0


SIMULATION NO.60-02

SDRAM SETTING

A : 0

[0～ 1]

A : 0 ; SETTING ENABLE

B : 1 ; COLUMN ADDRESS BITS

C : 3 ; ROW ADDRESS BITS

D : 2 ; NUM OF BANKS

61

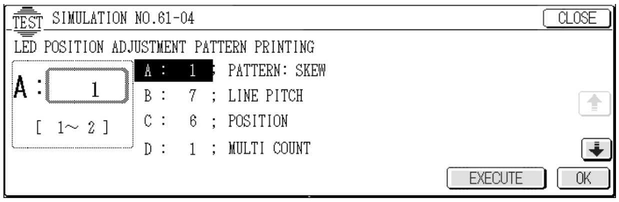
61 -04

Purpose	Adjustment
Function (Purpose)	Used to adjust the scanner (writing) unit (LED array unit) skew.
Section	Scanner (writing)
Item	Operation
Operation/ Procedure	1. Set the print conditions of the scanner (writing) unit (LED array unit) skew adjustment pattern. 2. Press the [EXECUTE] key. The scanner (writing) unit (LED array unit) skew adjustment pattern is printed.

(Items to be set)

Display		Content	Min. Value	Max. Value	Default
A	PATTERN	Print pattern specification 1: SKEW--- Used to check scan tilt. 2: FOCUS --- Used to check/adjust focus.	1	2	1
B	LINE PITCH	Dot print width (N-1) specification	1	10	7

Display		Content	Min. Value	Max. Value	Default
C	POSITION	Pattern output area selection	1	12	6
D	MULTI COUNT	Print quantity	1	999	1
E	PAPER	Paper feed tray selection (MFT, CS1,CS2, CS3, CS4, LCC)	1	6	2 (CS1)
F	EXIT TRAY	Paper exit tray selection (R, S)	1	2	1 (R)


SIMULATION NO.61-04

LED POSITION ADJUSTMENT PATTERN PRINTING

A : 1

[1~ 2]

A : 1 ; PATTERN: SKEW
B : 7 ; LINE PITCH
C : 6 ; POSITION
D : 1 ; MULTI COUNT

63

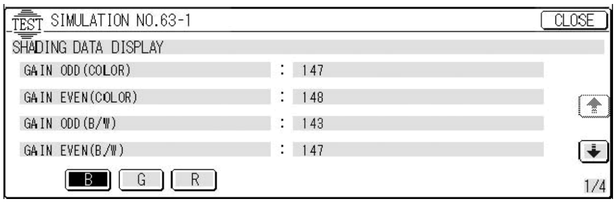
63	-01

Purpose	Adjustment/Setting/Operation data output, check (display, print)
Function (Purpose)	Used to check the result of shading correction. (The shading correction data are displayed.)
Section	Scanner (Exposure)
Item	Operation
Operation/ Procedure	Used to display the latest shading correction result. Data for each color can be separately checked with the color keys.

1. Select the color to be set with the color keys (CMY).
2. The display page can be shifted with the scroll key.

(Display item)

GAIN ODD	Gain adjustment value (ODD)	1/5
GAIN EVEN	Gain adjustment value (EVEN)	
OFFSET ODD	Offset value (ODD)	2/5
OFFSET EVEN	Offset value (EVEN)	
SMP AVE ODD	Reference plate sampling average value (ODD)	3/5
SMP AVE EVEN	Reference plate sampling average value (EVEN)	
TARGET VALUE	Target value	4/5
BLACK LEVEL	Black output level	
ERR CODE	Error code (0, 1-4, 11-14) 0: No error 1: STAGE 1, exceeded number of loops 2: STAGE 2, the target value is less than the specified level. 3: STAGE 3, the gain set value is negative. 4: END is not asserted. * Add +1- to the error code in color mode.	4/5
RSPF WHITE LEVEL 1ST	White reference level of the document feeder unit in the first scanning	5/5
RSPF WHITE LEVEL 2nd	White reference level of the document feeder unit in the second scanning	


SIMULATION NO.63-1

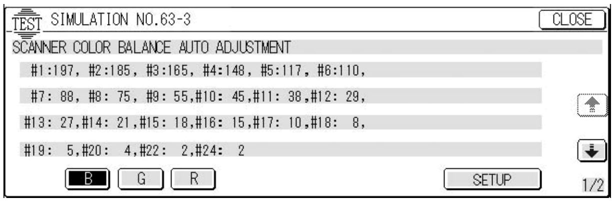
SHADING DATA DISPLAY

GAIN ODD(COLOR) : 147
GAIN EVEN(COLOR) : 148
GAIN ODD(B/W) : 143
GAIN EVEN(B/W) : 147

63	-03

Purpose	Adjustment	
Function (Purpose)	Used to adjust the CCD color balance (gamma).	
Section	Scanner (reading)	
Item	Picture quality	Color balance
Operation/ Procedure	Set the SIT chart (UKOG-0280FCZZ) on the document table, and press the [EXECUTE] key. The color coefficient automatic adjustment pattern reading is started to calculate and display the color coefficient data.	

The color coefficient data of each color can be displayed with the color key.

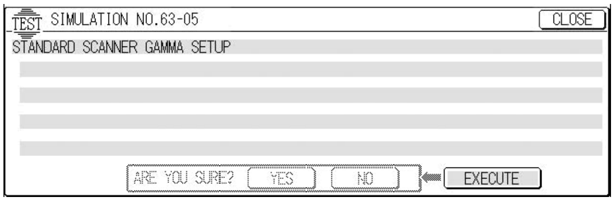

SIMULATION NO.63-3

SCANNER COLOR BALANCE AUTO ADJUSTMENT

```
#1:197, #2:185, #3:165, #4:148, #5:117, #6:110,
#7: 88, #8: 75, #9: 55,#10: 45,#11: 38,#12: 29,
#13: 27,#14: 21,#15: 18,#16: 15,#17: 10,#18:  8,
#19:  5,#20:  4,#22:  2,#24:  2
```

63	-05

Purpose	Setting	
Function (Purpose)	Used to set the CCD color balance (gamma) default.	
Section	Scanner (reading)	
Item	Picture quality	Color balance
Operation/ Procedure	1. Press the [EXECUTE] key, and the [YES] and [NO] keys become active. 2. When the [YES] key is pressed, the CCD color balance value is set to the default.	

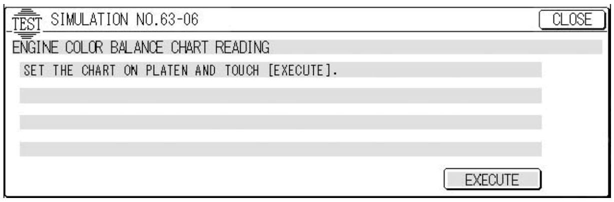

SIMULATION NO.63-05

STANDARD SCANNER GAMMA SETUP

ARE YOU SURE?

63	-06

Purpose	Adjustment/Operation data output check (display, print)	
Function (Purpose)	Used to check the color balance (gamma) check patch.	
Section	Image process (ICU)	
Item	Picture quality	Color balance
Operation/ Procedure	1. Set the color balance check patch printed with SIM 46-21 on the document table. 2. Press the [EXECUTE] key, and the reading is started and the data are displayed on the display.	



SIMULATION NO.63-06

ENGINE COLOR BALANCE CHART READING

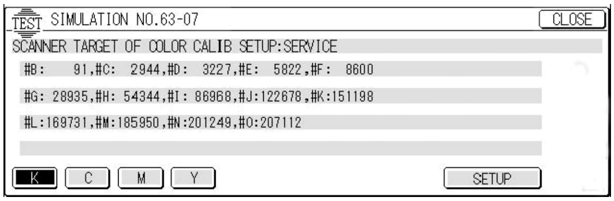
SET THE CHART ON PLATEN AND TOUCH [EXECUTE].

63 -07

Purpose	Setting
Function (Purpose)	Used to set the target color balance (gamma) for auto color balance adjustment. The standard color balance (gamma) or an optional color balance (gamma) is set as the service target.
Section	Image process (ICU)
Item	Picture quality Color balance
Operation/ Procedure	1. In the copy color balance adjustment (manual adjustment) (SIM 46-21) mode, the color patch image (adjustment pattern) is outputted. (This must be adjusted properly.)

2. Press the [SETUP] key.
3. Set the color patch image (adjustment pattern) paper printed in the copy color balance adjustment (manual adjustment) (SIM 46-21) mode on the document table.
4. Press the [EXECUTE] key. The color patch image (adjustment pattern) is read.
5. Press the REPEAT key and perform procedure 4 again.
6. Press the [OK] key.

The color balance corresponding to the color patch image (adjustment pattern) printed in the copy color balance adjustment (manual adjustment) is set as the service target.



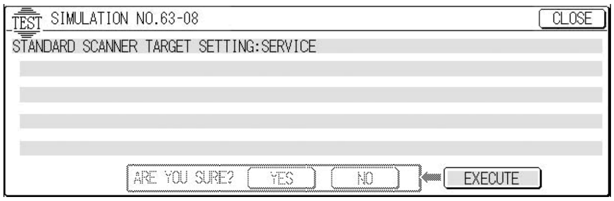
SIMULATION NO.63-07

SCANNER TARGET OF COLOR CALIB SETUP:SERVICE

```
#B:    91,#C:  2944,#D:  3227,#E:  5822,#F:  8600
#G: 28935,#H: 54344,#I: 86968,#J:122678,#K:151198
#L:169731,#M:185950,#N:201249,#O:207112
```

63 -08

Purpose	Setting
Function (Purpose)	Used to set the service target of the automatic color balance adjustment (SIM 46-24) and the automatic color balance adjustment target of the key operator program to the same balance as the factory target of the automatic color balance adjustment (SIM 46-24).
Section	Scanner (reading)
Item	Picture quality Color balance
Operation/ Procedure	1. Press the [EXECUTE] key. 2. Press the [YES] key. With the above procedures, the service target of the automatic color balance adjustment (SIM 46-24) and the automatic color balance adjustment target of the key operator program are set to the same level as the factory target of the automatic color balance adjustment (SIM 46-24).



SIMULATION NO.63-08

STANDARD SCANNER TARGET SETTING:SERVICE

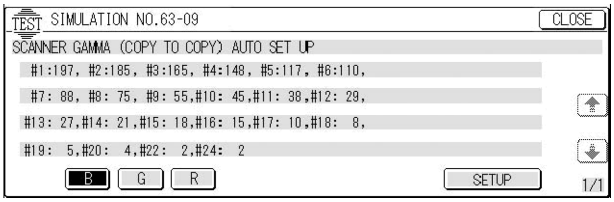
ARE YOU SURE?

63 -09

Purpose	Setting
Function (Purpose)	Used to adjust the CCD gamma (CCD calibration) (copy document mode).
Section	Scanner (reading)
Item	Picture quality Color balance
Operation/ Procedure	1. Set the SIT chart (UKOG-0280FCZZ) on the document table, and make a copy in the manual photo mode.

2. Set the copied SIT chart on the document table.
3. Enter the simulation 63-9 mode.
4. Press the [EXECUTE] key.

The color coefficient automatic adjustment pattern reading is started to calculate and display the color coefficient data. The color coefficient data of each color can be displayed with the color key.



SIMULATION NO.63-09

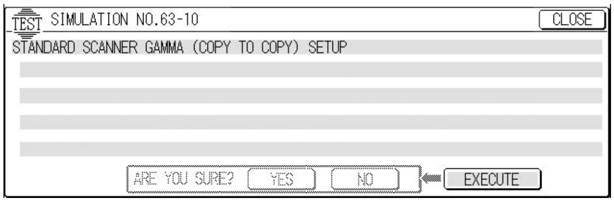
SCANNER GAMMA (COPY TO COPY) AUTO SET UP

```
 #1:197, #2:185, #3:165, #4:148, #5:117, #6:110,
 #7: 88, #8: 75, #9: 55,#10: 45,#11: 38,#12: 29,
#13: 27,#14: 21,#15: 18,#16: 15,#17: 10,#18:  8,
#19:  5,#20:  4,#22:  2,#24:  2
```

63 -10

Purpose	Setting
Function (Purpose)	Used to set the copy document mode color balance (gamma) default.
Section	Scanner (Image scanning)
Item	Picture quality Color balance
Operation/ Procedure	1. Press the [EXECUTE] key, and the [YES] and [NO] keys become active.

2. When the [YES] key is pressed, the color balance value is set to the default.



SIMULATION NO.63-10

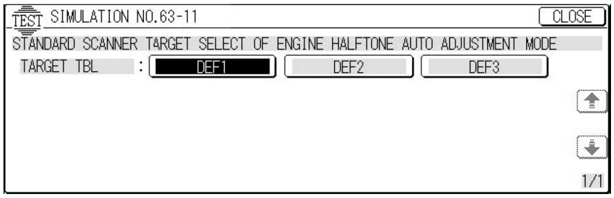
STANDARD SCANNER GAMMA (COPY TO COPY) SETUP

ARE YOU SURE?

63 -11

Purpose	Setting
Function (Purpose)	Used to set the factory color balance in the automatic color balance adjustment (SIM 46-24).
Section	Scanner (reading)
Item	Picture quality
Operation/ Procedure	There are three kinds of color balance targets. Select an optional color balance target. This setting is applied to the factory target only.

Display	Content	NOTE
DEF1	Color balance with emphasis on color reproduction (factory setting)	Default
DEF2	Color balance with slightly strong Cyan	
DEF3	Color balance with emphasis on Cyan	



SIMULATION NO.63-11

STANDARD SCANNER TARGET SELECT OF ENGINE HALFTONE AUTO ADJUSTMENT MODE

TARGET TBL : DEF1

Note: When this simulation is executed, SIM 63-8 should be executed after that.

64

64 -01

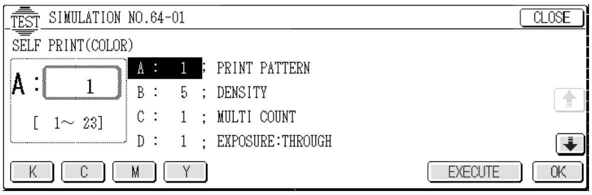
Purpose	Operation test/check
Function (Purpose)	Used to adjust the operations of the printer section (self-print operation/color). (The print pattern, paper feed mode, print mode, print quantity, and density can be changed optionally.)
Section	Printer
Item	Operation
Operation/ Procedure	1. Select the color to be self-printed with the color keys (CMYK). (Two or more colors can be selected together.) 2. Select the set item with the scroll key. 3. Enter the print conditions with the 10-key, and press the [OK] key to set the entered value. 4. Press the [EXECUTE] Key. The self-print pattern is printed.

(Items to be set)

	Display	Content	Set range	Default
A	PRINT PATTERN	Print pattern specification (* For details, refer to the following.)	1 – 23	1
B	DENSITY	Print gradation specification	1 – 255	5
C	MULTI COUNT	Print quantity	1 – 999	1
D	EXPOSURE	Exposure mode specification 1: THROUGH --- No process (Through) 2: CHAR/RIC --- Text/Printed photo 3: CHAR/PRPIC --- Text/Photograph 4: CHAR --- Text 5: PRITN PIC --- Printed photo 6: PRINT PAPER --- Photograph 7: MAP --- Map 8: STANDARD DITCH --- No correction, dither	1 – 8	1
E	PAPER	Paper feed tray selection (MFT, CS1, CS2. CS3, CS4, LCC)	1 – 6	2 (CS1)
F	EXIT TRAY	Paper exit tray selection (R, S)	1 – 2	1 (R)
G	DUPLEX	Duplex print selection (NO, YES)	1 – 2	1 (NO)
H	PAPER TYPE	Paper kind selection 1: PLAIN 2: HEAVY 1 3: HEAVY 2 4: OHP 1 5: OHP 2 6: ENVELOPE	1 – 6	1

(Print pattern descriptions)

No.	Content	Pattern generating device	Color selection		Gradation selection	Density selection
			Condition	No color		
1	Grid pattern	LED	❍	K only	Line width	×
2	Dot print	LED	❍	K only	❍	×
3	16 gradations: Sub scan	LED	❍ (Max. 3 colors)	K only	×	×
4	16 gradations: Main scan	LED	❍ (Max. 3 colors)	K only	×	×
5	Even pitch pattern (1 by 4): Sub scan	LED	❍	K only	❍	×
6	Even pitch pattern (1 by 4): Main scan	LED	❍	K only	❍	×
7	Even pitch pattern (2 by 6): Sub scan	LED	❍	K only	❍	×
8	Even pitch pattern (2 by 6): Main scan	LED	❍	K only	❍	×
9	Each color 10% (A4/A4R) density print	LED	× (4 colors fixed)	—	Pattern width	×
10	8 color band print	LED	× (4 colors fixed)	—	❍	×
11	Even pitch pattern (1 by N-1) sub scan direction gradation	LED	❍ (Max. 3 colors)	K only	Interval width (N-1)	×
12	Grid pattern	Input process	❍	K only	Grid pattern	❍
13	Dot print	Input process	❍	K only	❍	❍
14	256 gradations: Sub scan	Input process	❍ (Max. 3 colors)	K only	None	❍
15	256-gradation pattern (Fixed gradation)	Input process	❍ (Max. 3 colors)	K only	None	❍
16	256-gradation pattern (Certain gradation) (Gradation specified from external)	Input process	❍ (Max. 3 colors)	K only	None	❍
17	Whole background (half-tone)	Half tone	❍ (Max. 3 colors)	K only	❍	❍
18	256-gradation pattern (Other dither)	Half tone	❍ (Max. 3 colors)	K only	None	❍
19	256-gradatin pattern (Text dither)	Half tone	❍ (Max. 3 colors)	K only	None	❍
20	2-color background print	LED	❍	K only	❍	×
21	2-color dot print	LED	❍	K only	❍	×
22	4-color background print	LED	× (4 colors fixed)	—	❍	×
23	4-color dot print	LED	× (4 colors fixed)	—	❍	×



SELF PRINT(COLOR)

A : 1

[1~ 23]

A : 1 ; PRINT PATTERN
B : 5 ; DENSITY
C : 1 ; MULTI COUNT
D : 1 ; EXPOSURE:THROUGH

64 -02

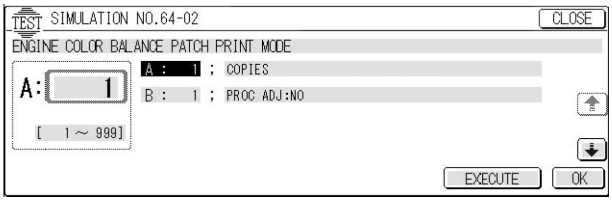
Purpose	Adjustment/Setting/Operation data output, check (display, print)
Function (Purpose)	Used to print the color patch image (adjustment pattern). The above color patch image (adjustment pattern) is outputted according to the currently adjusted color balance (gamma). Use SIM 63-7 to read the color patch image (adjustment pattern), which can be used as the service target of the automatic color balance (gamma) adjustment.
Section	Printer
Item	Operation
Operation/ Procedure	1. Select mode A with the scroll key. 2. Enter the print quantity with the 10-key.

3. Press the [OK] key.
4. Select mode C with the scroll key.
5. Enter the paper kind with the 10-key.
6. Press the [OK] key.
7. Select mode B with the scroll key.
8. Enter (select) the print pattern with the 10-key.
9. Press the [OK] key.
10. Press the [EXECUTE] key. The color patch image (adjustment pattern) is outputted.

Set Item B to "2". Print out is made under half tone correction.

	Display	Content	Min. Value	Max. Value	Default
A	COPIES	Print quantity	1	999	1
B	PROC ADJ	Reflection of half tone correction	1	2	1

Set value (B: PROC ADJ)	Reflection of half tone correction
1	NO
2	YES



ENGINE COLOR BALANCE PATCH PRINT MODE

A: 1

[1 ~ 999]

A : 1 ; COPIES
B : 1 ; PROC ADJ:NO

64 -03

Purpose	Operation test/check
Function (Purpose)	Used to check the operations of the printer section (self-print operation/BW). (The print pattern, the paper feed mode, the print mode, the print quantity, and the density can be set optionally.)
Section	Printer
Item	Operation
Operation/ Procedure	1. Select the set item with the scroll key. 2. Enter the print conditions with the 10-key and press the [OK] key to set the entered value.

3. Press the [EXECUTE] key. The self-print pattern is printed.

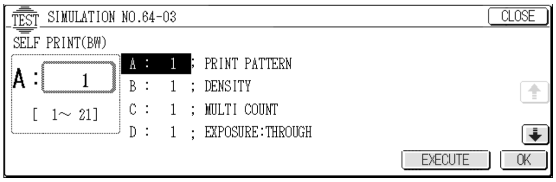
(Items to be set)

	Display	Content	Set range	Default
A	PRINT PATTERN	Print pattern specification (* For details, refer to the following.)	1 – 23	1
B	DENSITY	Print gradation specification	1 – 255	5
C	MULTI COUNT	Print quantity	1 – 999	1
D	EXPOSURE	Exposure mode specification 1: THROUGH --- No process (Through) 2: CHAR/RIC --- Text/Printed photo 3: CHAR/PRPIC --- Text/Photograph 4: CHAR --- Text 5: PRITN PIC --- Printed photo 6: PRINT PAPER --- Photograph 7: MAP --- Map 8: STANDARD DITCH --- No correction, dither	1 – 8	1
E	PAPER	Paper feed tray selection (MFT, CS1, CS2. CS3, CS4, LCC)	1 – 6	2 (CS1)
F	EXIT TRAY	Paper exit tray selection (R, S)	1 or 2	1 (R)
G	DUPLEX	Duplex print selection (NO, YES)	1 or 2	1 (NO)
H	PAPER TYPE	Paper kind selection 1: PLAIN 2: HEAVY 1 3: HEAVY 2 4: OHP 1 5: OHP 2 6: ENVELOPE	1 – 6	1

- Details of each print pattern in item A

No.	Content	Pattern generating device	Gradation selection	Density selection
1	Grid pattern	LED	Line width	×
2	Dot pattern	LED	○	×
3	16-grdation: sub scan	LED	×	×
4	16-gradation: main scan	LED	×	×
5	Even pitch pattern (1 by 4): sub scan	LED	○	×
6	Even pitch pattern (1 by 4): sub scan	LED	○	×
7	Even pitch pattern (2 by 6): sub scan	LED	○	×
8	Even pitch pattern (2 by 6): sub scan	LED	○	×
9	Each color 10% (A4/A4R) density print	LED	Pattern width	×
10	8-color band print	LED	○	×
11	Even pitch pattern (1 by N-1) sub scan direction gradation	LED	Interval width (N-1)	×
12	Grid pattern	Input process	Line width	○
13	Dot pattern	Input process	○	○
14	256 gradations: sub scan	Input process	None	○
15	256-gradation pattern (Fixed gradation)	Input process	None	○

No.	Content	Pattern generating device	Gradation selection	Density selection
16	256-gradation pattern (Certain gradation) (Gradation specified from external)	Input process	None	❍
17	Whole background (half tone)	Half tone	❍	❍
18	256-gradation pattern (Other dither)	Half tone	None	❍
19	256-gradation pattern (Text dither)	Half tone	None	❍
20	Half background print	LED	❍	×
21	Half background dot print	LED	❍	×
22	1/4 background print	LED	❍	×
23	1/4 background dot print	LED	❍	×



SELF PRINT(BW)

A : 1

[1～ 21]

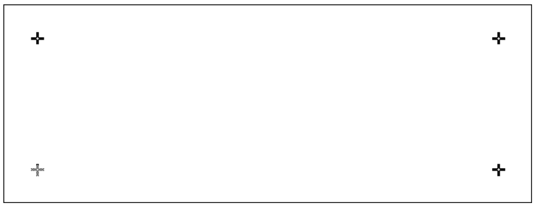
A : 1 ; PRINT PATTERN
B : 1 ; DENSITY
C : 1 ; MULTI COUNT
D : 1 ; EXPOSURE:THROUGH

65

65 -01

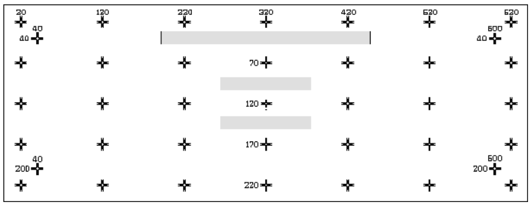
Purpose	Adjustment
Function (Purpose)	Used to adjust the touch panel (LCD display section) detection position.
Section	Operation (Display, procedure)
Operation/ Procedure	1. Touch the four cross marks. The coordinates at the pressed point are set.

When the coordinates are properly set, the mark "+" on the display turns to gray. When all the four points are pressed, the display returns to the normal display.



65 -02

Purpose	Adjustment/Setting/Operation data output, check (display, print)
Function (Purpose)	Used to check the result of the touch panel (LCD display) detection position adjustment. (The coordinates are displayed.)
Section	Operation (Display, procedure)
Operation/ Procedure	When the touch panel is pressed, the AD value in each of X and Y directions at that point and the coordinate values are displayed in ( ) as well as the coordinate values of each point. It is based on the coordinates set with SIM 65-1.

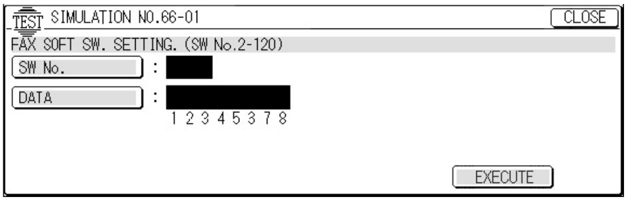


66

66 -01

Purpose	Setting
Function (Purpose)	Used to change/set the soft SW setting (FAX-related items). (When the FAX is installed.)
Section	FAX
Operation/ Procedure	1. Enter the soft SW number to be selected with the 10-key. 2. Change or set the selected soft SW setting. 3. Enter [EXECUTE] key to save the setting.

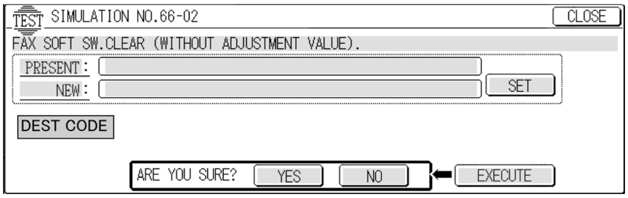
The FAX-related soft SW setting is displayed on the LCD for checking and changing.



FAX SOFT SW. SETTING. (SW No.2-120)

66 -02

Purpose	Setting
Function (Purpose)	Used to initialize the soft SW setting (FAX-related items) according to the destination. (When the FAX is installed.)
Section	FAX
Item	Data Initializing
Operation/ Procedure	1. Enter the destination code with the 10-key, and press [SET] key. 2. Press the [EXECUTE] key. (YES/NO key display) 3. When [Yes] key is pressed, the soft SW is initialized according to the destination code. (When [No] key is pressed, the operation is canceled.)

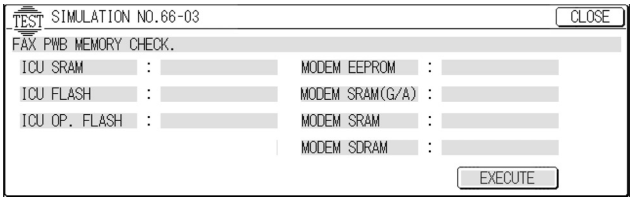


FAX SOFT SW.CLEAR (WITHOUT ADJUSTMENT VALUE).

66 -03

Purpose	Operation test/check
Function (Purpose)	Used to check the memory on the Modem controller. (When the FAX is installed.)
Section	FAX
Item	Operation
Operation/ Procedure	1. Press the [EXECUTE] key.

Read/write checks of the EEPROM, the SRAM (G/A), and the SDRAM on the modem controller and the SRAM and the Flash ROM on the MFP controller are executed and the results are displayed.



FAX PWB MEMORY CHECK.

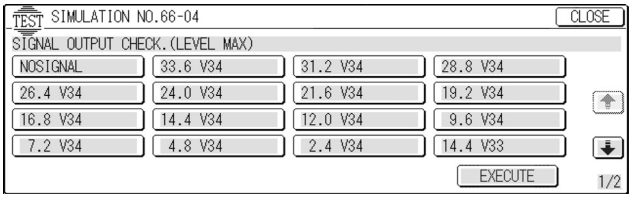
ICU SRAM :
ICU FLASH :
ICU OP. FLASH :
MODEM EEPROM :
MODEM SRAM(G/A) :
MODEM SRAM :
MODEM SDRAM :

66	-04
Purpose	Operation test/check
Function (Purpose)	Used to select a signal and send it to the line and speaker (at the max. level). (When the FAX is installed.)
Section	FAX
Item	Operation
Operation/ Procedure	The page can be selected with the scroll keys. 1. Select the send mode. 2. Press the [EXECUTE] key.

(Sendable signals)

Page.1:		Page.2:	
	NO SIGNAL (No signal is sent.)		12.0 V33
	33.6 V34 (3429)		14.4 V17
	31.2 V34 (3429)		12.0 V17
	28.8 V34 (3429)		9.6 V17
	26.4 V34 (3200Low)		7.2 V17
	24.0 V34 (3200Hi)		9.6 V29
	21.6 V34 (3200Low)		7.2 V29
	19.2 V34 (3000Hi)		4.8 V27t
	16.8 V34 (3000Low)		2.4 V27t
	14.4 V34 (3000Hi)		0.3 FLG
	12.0 V34 (2800)		CED 2100
	9.6 V34 (2800)		CNG 1100
	7.2 V34 (2800)		0.3 V21
	4.8 V34 (2400)		ANSam
	2.4 V34 (2400)		RINGER
	14.4 V33		No RBT

∗ The unit of setting is kbps. Setting is made by the key display name. The item in ( ) is, however, excluded.

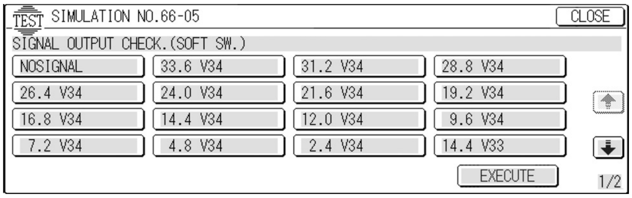

TEST
SIMULATION NO.66-04
CLOSE
SIGNAL OUTPUT CHECK.(LEVEL MAX)
NOSIGNAL
33.6 V34
31.2 V34
28.8 V34
26.4 V34
24.0 V34
21.6 V34
19.2 V34
16.8 V34
14.4 V34
12.0 V34
9.6 V34
7.2 V34
4.8 V34
2.4 V34
14.4 V33
EXECUTE
1/2

66	-05
Purpose	Operation test/check
Function (Purpose)	Used to select a signal and send it to the line and the speaker. (Level: Soft SW setting) (When the FAX is installed.)
Section	FAX
Item	Operation
Operation/ Procedure	The page can be selected with the scroll keys. 1. Select the send mode. 2. Press the [EXECUTE] key.

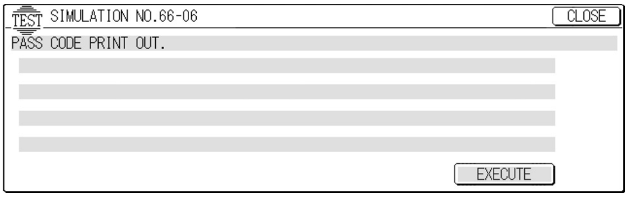
(Sendable signals)

Page.1:		Page.2:	
	NO SIGNAL (No signal is sent.)		12.0 V33
	33.6 V34 (3429)		14.4 V17
	31.2 V34 (3429)		12.0 V17
	28.8 V34 (3429)		9.6 V17
	26.4 V34 (3200Low)		7.2 V17
	24.0 V34 (3200Hi)		9.6 V29
	21.6 V34 (3200Low)		7.2 V29
	19.2 V34 (3000Hi)		4.8 V27t
	16.8 V34 (3000Low)		2.4 V27t
	14.4 V34 (3000Hi)		0.3 FLG
	12.0 V34 (2800)		CED 2100
	9.6 V34 (2800)		CNG 1100
	7.2 V34 (2800)		0.3 V21
	4.8 V34 (2400)		ANSam
	2.4 V34 (2400)		RINGER
	14.4 V33		No RBT

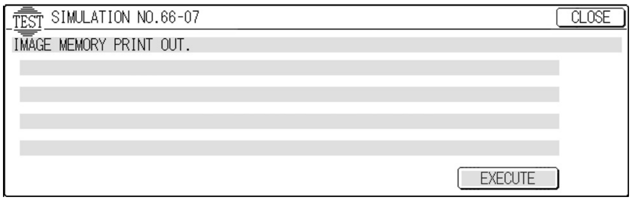
∗ The unit of setting is kbps. Setting is made by the key display name. The item in ( ) is, however, excluded.


TEST
SIMULATION NO.66-05
CLOSE
SIGNAL OUTPUT CHECK.(SOFT SW.)
NOSIGNAL
33.6 V34
31.2 V34
28.8 V34
26.4 V34
24.0 V34
21.6 V34
19.2 V34
16.8 V34
14.4 V34
12.0 V34
9.6 V34
7.2 V34
4.8 V34
2.4 V34
14.4 V33
EXECUTE
1/2

66	-06
Purpose	Data output/check
Function (Purpose)	Used to print the check list of the contents when confidential registration is made. (When the FAX is installed.)
Section	FAX
Item	Data Confidential pass code
Operation/ Procedure	1. Press the [EXECUTE] key. The confidential registration check list (Box No., BOX name, and print pass code) is printed. (If there is no registration, print is not made.)


TEST
SIMULATION NO.66-06
CLOSE
PASS CODE PRINT OUT.
EXECUTE

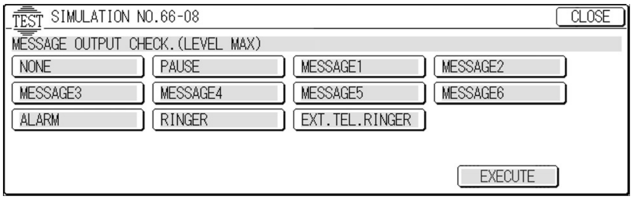
66	-07
Purpose	Data output/check
Function (Purpose)	Used to print all the images in the memory. (When the FAX is installed.)
Section	FAX
Item	Data Image data
Operation/ Procedure	1. Press the [EXECUTE] key. All the image data saved in the image memory are outputted. ∗ The confidential receive data are also outputted.


TEST
SIMULATION NO.66-07
CLOSE
IMAGE MEMORY PRINT OUT.
EXECUTE

66	-08
Purpose	Operation test/check
Function (Purpose)	Used to select a voice message and send it to the line and the speaker (at the max. level). (When the FAX is installed.)
Section	FAX
Item	Operation
Operation/ Procedure	1. Select the voice message to be sent. 2. Press the [EXECUTE] key.

(Sendable message)

NONE	Mute
PAUSE	Hold-on melody
MESSAGE1	Message 1
MESSAGE2	Message 2
MESSAGE3	Message 3
MESSAGE4	Message 4
MESSAGE5	Message 5
MESSAGE6	Message 6
ALARM	Alarm
RINGER	Calling melody (speaker)
EXT.TEL.RINGER	External telephone call


TEST SIMULATION NO.66-08

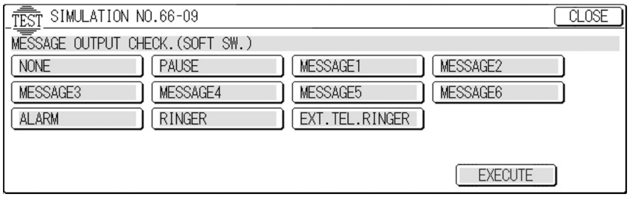
MESSAGE OUTPUT CHECK.(LEVEL MAX)
CLOSE
NONE
PAUSE
MESSAGE1
MESSAGE2
MESSAGE3
MESSAGE4
MESSAGE5
MESSAGE6
ALARM
RINGER
EXT.TEL.RINGER
EXECUTE

66 -09

Purpose	Operation test/check
Function (Purpose)	Used to select a signal and send it to the line and the speaker. (Level: soft SW setting). (When the FAX is installed.)
Section	FAX
Item	Operation
Operation/ Procedure	1. Select the voice message to be sent. 2. Press the [EXECUTE] key.

(Sendable message)

NONE	Mute
PAUSE	Hold-on melody
MESSAGE1	Message 1
MESSAGE2	Message 2
MESSAGE3	Message 3
MESSAGE4	Message 4
MESSAGE5	Message 5
MESSAGE6	Message 6
ALARM	Alarm
RINGER	Calling melody (speaker)
EXT.TEL.RINGER	External telephone call


TEST SIMULATION NO.66-09

MESSAGE OUTPUT CHECK.(SOFT SW.)
CLOSE
NONE
PAUSE
MESSAGE1
MESSAGE2
MESSAGE3
MESSAGE4
MESSAGE5
MESSAGE6
ALARM
RINGER
EXT.TEL.RINGER
EXECUTE

66 -10

Purpose	Data clear
Function (Purpose)	All the images in the memory can be deleted. (When the FAX is installed.)
Section	FAX
Item	Data Image data
Operation/ Procedure	1. Press the [EXECUTE] key. All the image data saved in the image memory are deleted.

* Confidentially received data are also deleted.

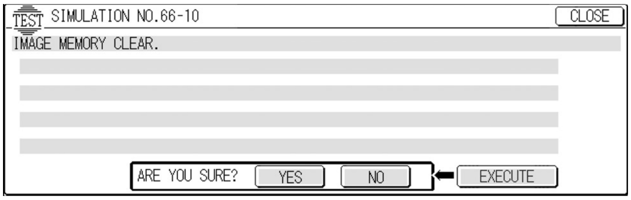

TEST SIMULATION NO.66-10

IMAGE MEMORY CLEAR.

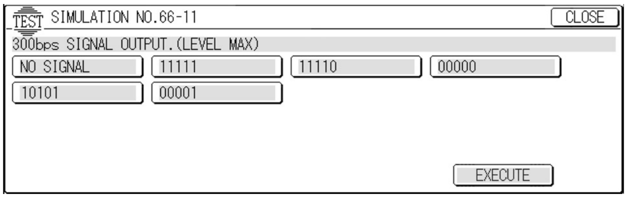
ARE YOU SURE?
CLOSE
YES
NO
EXECUTE

66 -11

Purpose	Operation test/check
Function (Purpose)	Used to select a pattern and send it to the line and the speaker at 300bps (at the max. level). (When the FAX is installed.)
Section	FAX
Item	Operation
Operation/ Procedure	1. Select the pattern to be sent. 2. Press the [EXECUTE] key.

(Sendable voice message)

NO SIGNAL	No signal (CML ON)
00000	Repetition of "00000"
11111	Repetition of "11111"
10101	Repetition of "10101"
11110	Repetition of "11110"
00001	Repetition of "00001"


TEST SIMULATION NO.66-11

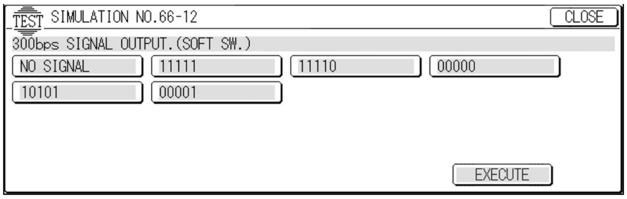
300bps SIGNAL OUTPUT.(LEVEL MAX)
CLOSE
NO SIGNAL
11111
11110
00000
10101
00001
EXECUTE

66 -12

Purpose	Operation test/check
Function (Purpose)	Used to select a pattern and send it to the line and the speaker at 300bps. (Level: soft SW setting) (When the FAX is installed.)
Section	FAX
Item	Operation
Operation/ Procedure	1. Select the pattern to be sent. 2. Press the [EXECUTE] key.

(Sendable voice message)

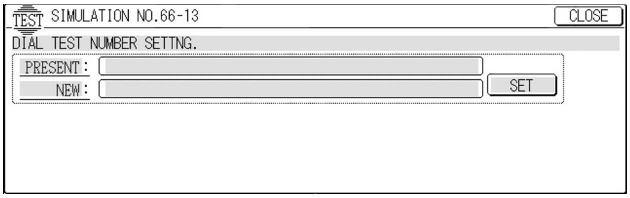
NO SIGNAL	No signal (CML ON)
00000	Repetition of "00000"
11111	Repetition of "11111"
10101	Repetition of "10101"
11110	Repetition of "11110"
00001	Repetition of "00001"


TEST SIMULATION NO.66-12

300bps SIGNAL OUTPUT.(SOFT SW.)
CLOSE
NO SIGNAL
11111
11110
00000
10101
00001
EXECUTE

66 -13

Purpose	Setting
Function (Purpose)	Used to register a dial number for test used in SIM 66-14/15/16. (When the FAX is installed.)
Section	FAX
Item	Data Registration
Operation/ Procedure	If a dial number is already registered, it is displayed on "PRESENT: ." 1. Enter a dial number with the 10-key (displayed on NEW:) and press [SET] key. The registered number is displayed on "PRESENT:."

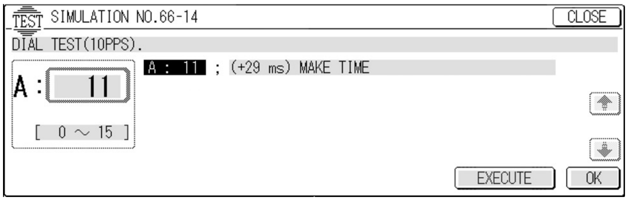

SIMULATION NO.66-13
DIAL TEST NUMBER SETTNG.
PRESENT:
NEW:

66 -14

Purpose	Adjustment
Function (Purpose)	Used to adjust and check the make time of dial pulse (10pps). (When the FAX is installed.)
Section	FAX
Item	Operation
Operation/ Procedure	1. Enter the make time to be set with the 10-key. 2. Press [OK] key to set. 3. Press [EXECUTE] key to send the pulse (dial set with SIM 66-13).

(Items to be set)

	Item	Set range	Default
A	Make time	0 – 15	11 (Europe) 6 (Australia, New Zealand)

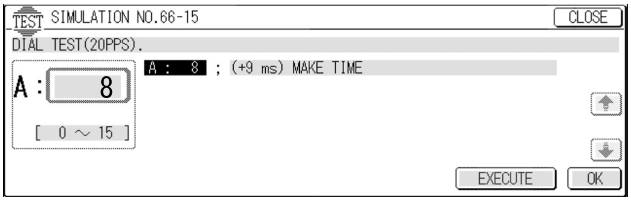

SIMULATION NO.66-14
DIAL TEST(10PPS).
A : 11
[0 ～ 15]
A : 11 ; (+29 ms) MAKE TIME

66 -15

Purpose	Adjustment
Function (Purpose)	Used to adjust and check the make time of the dial pulse (20pps). (When the FAX is installed.)
Section	FAX
Item	Operation
Operation/ Procedure	1. Enter the make time to be set with the 10-key. 2. Press [OK] key to set. 3. Press [EXECUTE] key to send the pulse (dial set with SIM 66-13).

(Items to be set)

	Item	Set range	Default
A	Make time	0 – 15	8

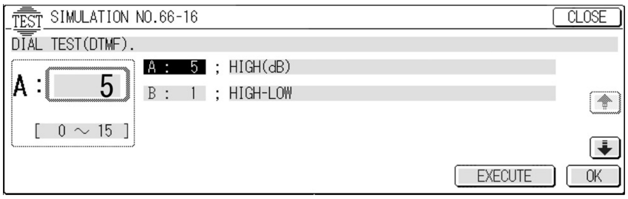

SIMULATION NO.66-15
DIAL TEST(20PPS).
A : 8
[0 ～ 15]
A : 8 ; (+9 ms) MAKE TIME

66 -16

Purpose	Adjustment
Function (Purpose)	Used to adjust and check the send level of DTFM signal. (When the FAX is installed.)
Section	FAX
Item	Operation
Operation/ Procedure	1. Select an item to be adjusted with the scroll key. 2. Enter the set value with the 10-key. 3. Press [OK] key to set. 4. Press [EXECUTE] key to send pulses (dial set with SIM 66-13) from the line at each setting of the high group and the low group of the send level.

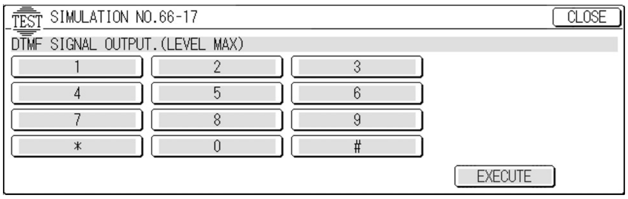
(Adjustable items)

	Item	Set range	Default
A	Level (db)	0 – 15	5
B	Difference between the high and the low groups	0 – 15	1


SIMULATION NO.66-16
DIAL TEST(DTMF).
A : 5
[0 ～ 15]
A : 5 ; HIGH(dB)
B : 1 ; HIGH-LOW

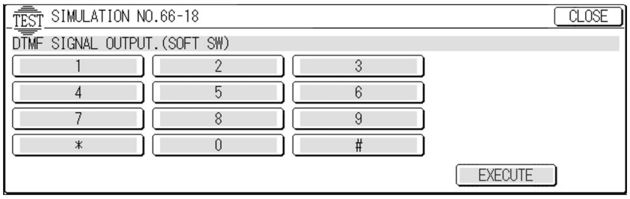
66 -17

Purpose	Operation test/check
Function (Purpose)	Used to select the DTFM signal (1 – 9, 0, *, #) to send it to the line and the speaker (at the max. level). (When the FAX is installed.)
Section	FAX
Item	Operation
Operation/ Procedure	1. Select the DTFM signal (1 – 9, 0, *, #) to be sent. 2. Press the [EXECUTE] key.


SIMULATION NO.66-17
DTMF SIGNAL OUTPUT.(LEVEL MAX)

66 -18

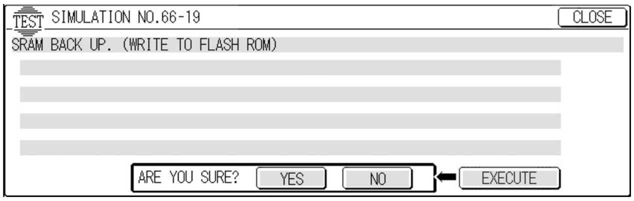
Purpose	Operation test/check
Function (Purpose)	Used to select the DTFM signal (1 – 9, 0, *, #) to send it to the line and the speaker (Level: soft SW setting). (When the FAX is installed.)
Section	FAX
Item	Operation
Operation/ Procedure	1. Select the DTFM signal (1 – 9, 0, *, #) to be sent. 2. Press the [EXECUTE] key.


SIMULATION NO.66-18
DTMF SIGNAL OUTPUT.(SOFT SW)

66 -19

Purpose	Backup
Function (Purpose)	Used to write the ICU PWB SRAM contents (various set values and user data) into the Flash ROM (AR-MM9). (When the FAX is installed.)
Section	FAX
Item	Data
Operation/ Procedure	1. Press the [EXECUTE] key. (YES/NO key display) 2. Press [Yes] key to write the ICU PWB SRAM data into the Flash ROM (AR-MM9).

This function is enabled only when the AR-MM9 is installed. It is used when the ICU PWB SRAM data must be backed up in case of repair of the ICU PWB, etc.


SIMULATION NO.66-19

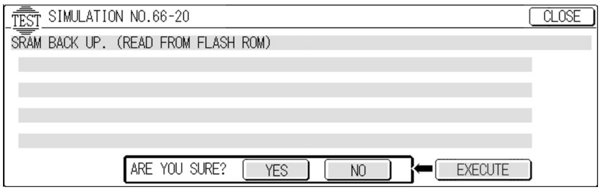
SRAM BACK UP. (WRITE TO FLASH ROM)

ARE YOU SURE?

66 -20

Purpose	Backup
Function (Purpose)	Used to write the Flash ROM (AR-MM9) contents (SRAM contents written with SIM 66-19) into the ICU PWB SRAM. (When the FAX is installed.)
Section	FAX
Item	Data
Operation/ Procedure	1. Press the [EXECUTE] key. (YES/NO key display) 2. Press [Yes] key to write the Flash ROM (AR-MM9) data into the ICU PWB SRAM.

This function is enabled only when the AR-MM9 is installed. It is used to restore the backup data of the AR-MM9 to the ICU PWB SRAM after completion of repair of the ICU PWB.


SIMULATION NO.66-20

SRAM BACK UP. (READ FROM FLASH ROM)

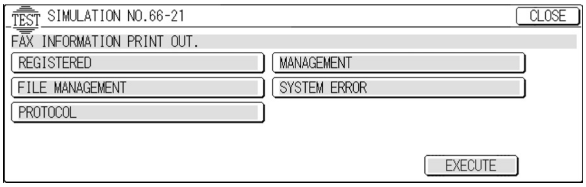
ARE YOU SURE?

66 -21

Purpose	Check
Function (Purpose)	Used to print various registration information, communication, file management, system error, and protocol information. (When the FAX is installed.)
Section	FAX
Item	Data
Operation/ Procedure	1. Select items to be printed. 2. Press the [EXECUTE] key.

(Printable data)

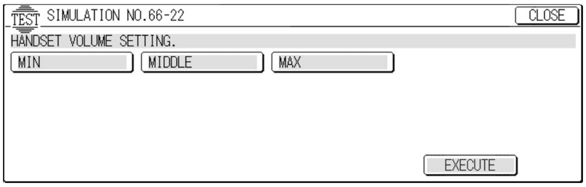
REGISTERED	Various registration information
MANAGEMENT	Communication management information
FILE MANAGEMENT	File management information
SYSTEM ERROR	System error information
PROTOCOL	Protocol information


SIMULATION NO.66-21

FAX INFORMATION PRINT OUT.

66 -22

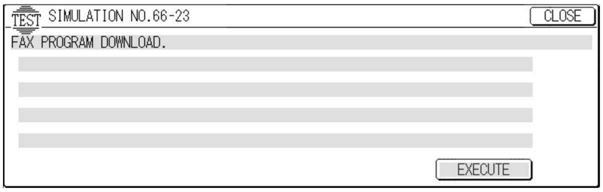
Purpose	Setting
Function (Purpose)	Used to set the sound volume of the handset. (When the FAX is installed.)
Section	FAX
Item	Operation
Operation/ Procedure	1. Select the sound volume. (MIN: Minimum, MIDDLE: Middle, MAX. Maximum) 2. Press the [EXECUTE] key.


SIMULATION NO.66-22

HANDSET VOLUME SETTING.

66 -23

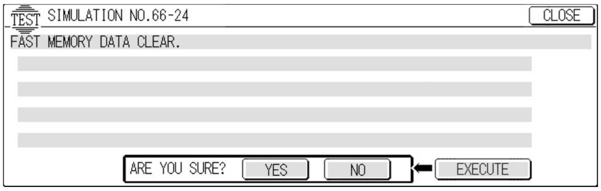
Purpose	Setting
Function (Purpose)	Used to download the FAX program. (When the FAX is installed.)
Section	FAX
Item	Operation
Operation/ Procedure	1. Press the [EXECUTE] key. The FAX program is downloaded.


SIMULATION NO.66-23

FAX PROGRAM DOWNLOAD.

66 -24

Purpose	Data clear
Function (Purpose)	Used to clear the data in the FAST memory. (When the FAX is installed.)
Section	FAX
Item	Data Initializing
Operation/ Procedure	1. Press the [EXECUTE] key. (YES/NO key display) 2. Press [Yes] key to clear the data stored in the FAST memory. (Press [NO] key to cancel.)

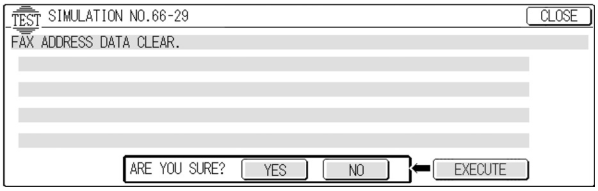

SIMULATION NO.66-24

FAST MEMORY DATA CLEAR.

ARE YOU SURE?

66 -29

Purpose	Data clear
Function (Purpose)	Used to clear the data related to the address book (one-touch registration, program registration/ expansion, interface memory box registration, each table contents). (When the FAX is installed.)
Section	FAX
Item	Data Initializing
Operation/ Procedure	1. Press the [EXECUTE] key. (YES/NO key display) 2. Press [Yes] key to clear the data stored in the FAST memory. (Press [NO] key to cancel.)

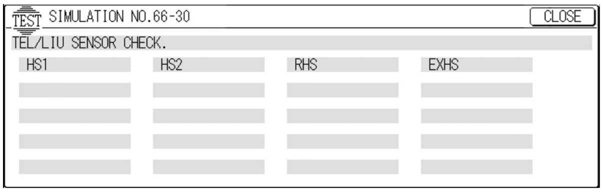

TEST SIMULATION NO.66-29
CLOSE
FAX ADDRESS DATA CLEAR.
ARE YOU SURE?
YES
NO
EXECUTE

66 -30

Purpose	Operation test/check
Function (Purpose)	Used to check the status change of the TEL/LIU sensor. (When the FAX is installed.)
Section	FAX
Item	Operation
Operation/ Procedure	Each display is reversed or normalized according to the status change.

(Checkable sensors)

HS1	Polarity reverse signal
HS2	Polarity reverse signal
RHS	Handset hook SW
EXHS	External telephone hook SW

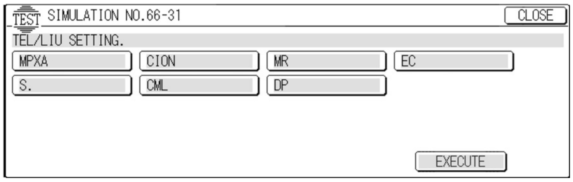

TEST SIMULATION NO.66-30
CLOSE
TEL/LIU SENSOR CHECK.
HS1
HS2
RHS
EXHS

66 -31

Purpose	Setting
Function (Purpose)	Used to set ON/OFF of each port for output to the TEL/LIU. (When the FAX is installed.)
Section	FAX
Item	Operation
Operation/ Procedure	1. Press the [EXECUTE] key. (ON: Reverse display) 2. Press the [EXECUTE] key. (Setting is saved.)

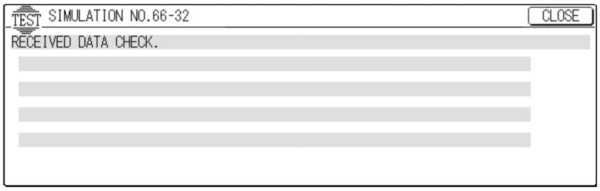
(Settable ports)

MPXA
CION
MR
EC
S
CML
DP


TEST SIMULATION NO.66-31
CLOSE
TEL/LIU SETTING.
MPXA
CION
MR
EC
S.
CML
DP
EXECUTE

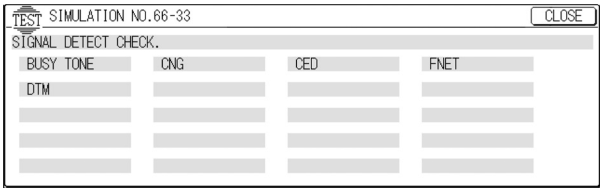
66 -32

Purpose	Operation test/check
Function (Purpose)	Used to check (compare) the received data (fixed data) from the line to make judgment of error or normal. (When the FAX is installed.)
Section	FAX
Item	Operation
Operation/ Procedure	The fixed data received from the line are checked and the result is displayed. Coincide: OK is displayed. / Not coincide: NG is displayed.


TEST SIMULATION NO.66-32
CLOSE
RECEIVED DATA CHECK.

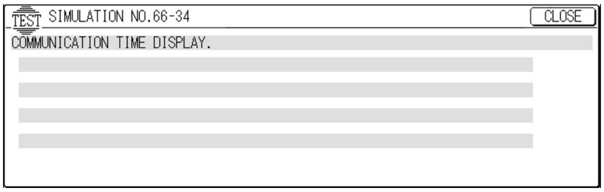
66 -33

Purpose	Operation test/check
Function (Purpose)	Used to detect signals (BUSY TONE/CNG/CED/ FNET) from the line. (When the FAX is installed.)
Section	FAX
Item	Operation
Operation/ Procedure	Various signals are detected with the line connected. The detected signals are highlighted.


TEST SIMULATION NO.66-33
CLOSE
SIGNAL DETECT CHECK.
BUSY TONE
CNG
CED
FNET
DTM

66 -34

Purpose	Operation test/check
Function (Purpose)	Used to display the time required for sending the test image data. (When the FAX is installed.)
Section	FAX
Item	Operation
Operation/ Procedure	The send test is executed, and the time to send the image data in that test communication is measured and displayed. Send/receive are executed in the normal mode, and the measure communication time (ms) is displayed.

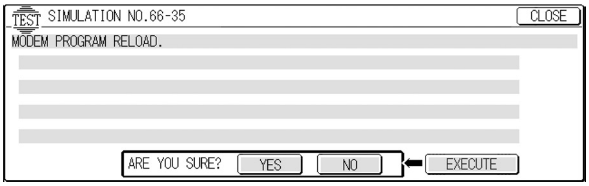

TEST SIMULATION NO.66-34
CLOSE
COMMUNICATION TIME DISPLAY.

66 -35

Purpose	Setting
Function (Purpose)	Used to rewrite the Modem program. (When the FAX is installed.)
Section	FAX
Item	Data Writing
Operation/ Procedure	1. Press the [EXECUTE] key. (YES/NO key display) 2. Press [Yes] key to rewrite the Modem program. (Press [NO] to cancel.) 3. Check sum is executed and the write result is displayed.

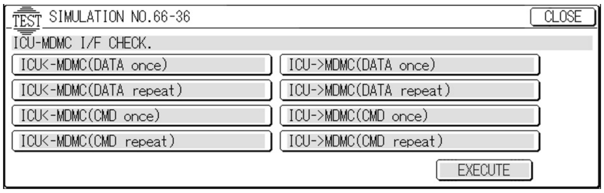
(Check sum result display)

COMPLETE : Write complete
81 : Check sum error
82 : Write error
83 : Delete error
84 : Verify error
NG : Because of LOADER NG


TEST SIMULATION NO.66-35
CLOSE
MODEM PROGRAM RELOAD.
ARE YOU SURE?
YES
NO
EXECUTE

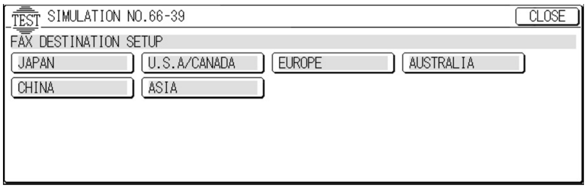
66 -36

Purpose	Operation test/check
Function (Purpose)	Used to check send/receive (data/command line) from the Modem controller to the MFP controller. (When the FAX is installed)
Section	FAX
Item	Operation
Operation/ Procedure	1. Press [EXECUTE] key to check send and receive operation of the data line or the command line individually from the Model controller to the MFP controller.


TEST SIMULATION NO.66-36
CLOSE
ICU-MDMC I/F CHECK.
ICU<-MDMC(DATA once)
ICU->MDMC(DATA once)
ICU<-MDMC(DATA repeat)
ICU->MDMC(DATA repeat)
ICU<-MDMC(CMD once)
ICU->MDMC(CMD once)
ICU<-MDMC(CMD repeat)
ICU->MDMC(CMD repeat)
EXECUTE

66 -39

Purpose	Setting
Function (Purpose)	Used to set the destination of the FAX. (When the FAX is installed.)
Section	FAX
Item	Specifications
Operation/ Procedure	Press the key corresponding to the destination to set. The set information is saved in the EEPROM in the FAX unit. If no setting is made, "NO DESTINATION" is displayed.


TEST SIMULATION NO.66-39
CLOSE
FAX DESTINATION SETUP
JAPAN
U.S.A/CANADA
EUROPE
AUSTRALIA
CHINA
ASIA

[10] MAINTENANCE LIST

1. Maintenance system table

×: Check (Clean, replace, or adjust as necessary.) ❍: Clean ▲: Replace △: Adjust ☆: Lubricate ❑: Shift position

Unit Name	No.	Part name	When calling	50K	100K	150K	200K	250K	300K	350K	400K	Remark
Drum peripheral section	1	Drum (B/W, Color)		▲	▲	▲	▲	▲	▲	▲	▲	
	2	Charging unit		▲	▲	▲	▲	▲	▲	▲	▲	
	3	Cleaner blade		▲	▲	▲	▲	▲	▲	▲	▲	
	4	Toner reception seal		▲	▲	▲	▲	▲	▲	▲	▲	
	5	Drum cartridge		▲	▲	▲	▲	▲	▲	▲	▲	When replacing the unit
Developing section (integrated with toner cartridge)		Toner cartridge	Replaced by user when toner empty (or at the specified distance covered)									
Transfer section	1	Transfer belt		×	▲	×	▲	×	▲	×	▲	Replace at 100K or within 2 years.
	2	Transfer roller		×	▲	×	▲	×	▲	×	▲	
	3	Transfer belt cleaning blade		×	▲	×	▲	×	▲	×	▲	Replace at 100K or within 2 years.
	4	Transfer discharge sheet		×	❍	×	❍	×	❍	×	❍	
	5	Transfer belt cleaning roller		×	▲	×	▲	×	▲	×	▲	
	6	Transfer drive roller		×	×	×	×	×	×	×	×	
	7	Transfer follower roller		×	×	×	×	×	×	×	×	
	8	Transfer cleaning brush		×	×	×	×	×	×	×	×	
	9	Sensors		×	×	×	×	×	×	×	×	
	10	Waste toner tank unit	▲	×	▲	×	▲	×	▲	×	▲	When waste toner full is detected.
	11	Transfer belt unit		×	▲	×	▲	×	▲	×	▲	Replace the unit at 100K or within 2 years.
Fusing section	1	Upper heat roller	×	×	▲	×	▲	×	▲	×	▲	Replace at 100K or within 2 years.
	2	Lower heat roller	×	×	▲	×	▲	×	▲	×	▲	Replace at 100K or within 2 years.
	3	Heat roller gear	×	×	▲	×	▲	×	▲	×	▲	100K
	4	Heat roller bearing	×	×	▲	×	▲	×	▲	×	▲	100K
	5	Separation pawl	×	×	▲	×	▲	×	▲	×	▲	100K
	6	Thermistor	×	×	▲	×	▲	×	▲	×	▲	100K
	7	Bearings	×	×	×	×	×	×	×	×	×	
	8	Gears	×	☆	☆	☆	☆	☆	☆	☆	☆	
	9	Paper guides	❍	❍	❍	❍	❍	❍	❍	❍	❍	
	10	Paper exit roller	×	×	×	×	×	×	×	×	×	
	11	Paper exit roller	×	×	×	×	×	×	×	×	×	
	12	Discharge brush	×	×	×	×	×	×	×	×	×	
	13	Fusing unit		×	▲	×	▲	×	▲	×	▲	Replace the unit at 100K or within 2 years.
Optical section	1	CCD, mirror, lens, reflector	❍	❍	❍	❍	❍	❍	❍	❍	❍	
	2	Table glass, sensors, OC	❍	❍	❍	❍	❍	❍	❍	❍	❍	
	3	SPF glass	❍	❍	❍	❍	❍	❍	❍	❍	❍	
	4	Rails	☆	☆	☆	☆	☆	☆	☆	☆	☆	
	5	Drive wire, pulley, pulley belt	×	×	×	×	×	×	×	×	×	
Paper feed section	1	Cassette section paper feed rollers	❍	❍	×	❍	×	❍	×	❍	×	Replace according to the counter of each paper feed port or within 2 years.
	2	Torque limiter	×		×		×		×		×	
	3	Manual feed section paper feed rollers	❍	×	×	×	×	×	×	×	×	Replace according to the counter of each paper feed port or within 2 years.
	4	Torque limiter	×	×	×	×	×	×	×	×	×	

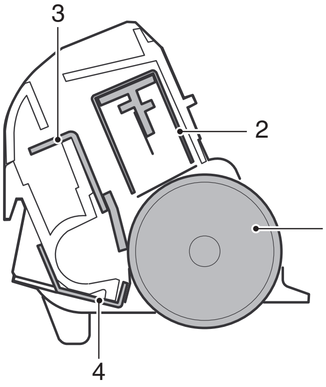
Unit Name	No.	Part name	When calling	50K	100K	150K	200K	250K	300K	350K	400K	Remark
Transport section	5	Transport rollers	❍	❍	❍	❍	❍	❍	❍	❍	❍	
	6	Transport paper guides	❍	❍	❍	❍	❍	❍	❍	❍	❍	
LED	1	LED lens	❍	❍	❍	❍	❍	❍	❍	❍	❍	
RSPF section	1	Pickup roller	❍									
	2-1	Separation unit	❍									Replacement when worn down
	2-2	Separation sheet	❍									
	3	Paper feed roller	❍									
	4	PS roller	❍									
	5	Transport roller	❍									
	6	Paper exit roller	❍									
Filters	1	Ozone filter	×	▲	▲	▲	▲	▲	▲	▲	▲	
	2	Sub ozone filter	×	▲	▲	▲	▲	▲	▲	▲	▲	
Drive section	3	Gears	☆	☆	☆	☆	☆	☆	☆	☆	☆	
	4	Belts	×	×	×	×	×	×	×	×	×	
Others	5	Sensors	×		×		×		×		×	
Image-related sections			×	×	×	×	×	×	×	×	×	

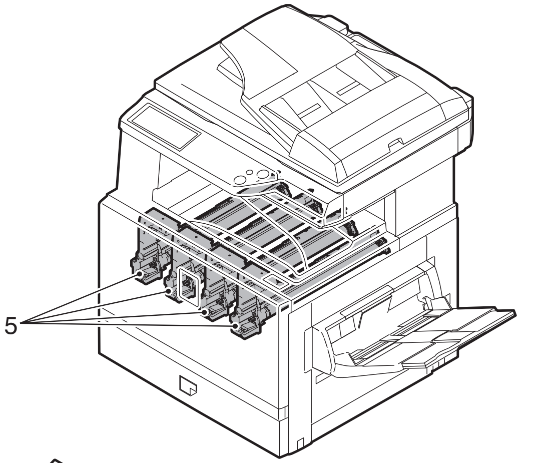
2. List

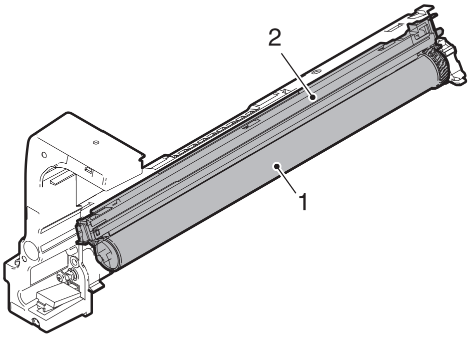
A. Drum peripheral section

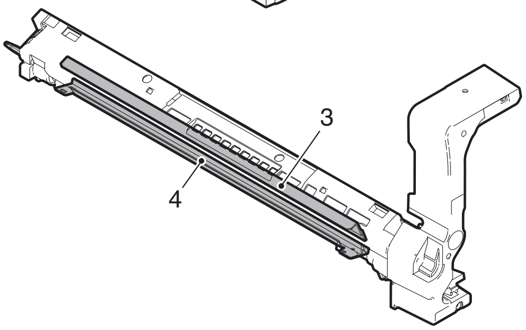
×: Check (Clean, replace, or adjust as necessary.) ❍: Clean ▲: Replace ∆: Adjust ☆: Lubricate ❑: Shift position

Unit Name	No.	Part name	When calling	50K	100K	150K	200K	250K	300K	350K	400K	Remark
Drum peripheral section	1	Drum (B/W, Color)		▲	▲	▲	▲	▲	▲	▲	▲	
	2	Charging unit		▲	▲	▲	▲	▲	▲	▲	▲	
	3	Cleaner blade		▲	▲	▲	▲	▲	▲	▲	▲	
	4	Toner reception seal		▲	▲	▲	▲	▲	▲	▲	▲	
	5	Drum cartridge		▲	▲	▲	▲	▲	▲	▲	▲	When replacing the unit





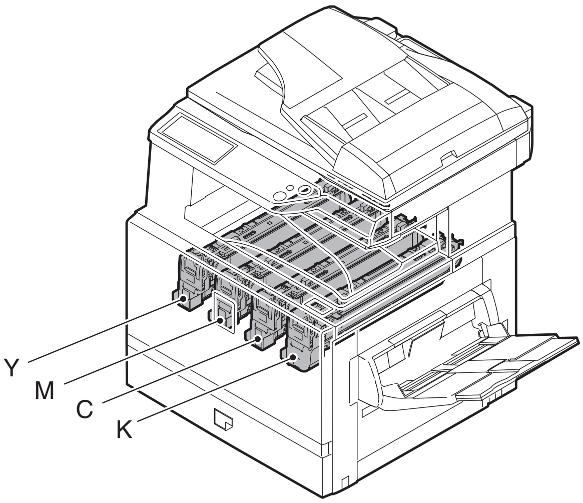




B. Developing section

×: Check (Clean, replace, or adjust as necessary.) ❍: Clean ▲: Replace ∆: Adjust ☆: Lubricate ❑: Shift position

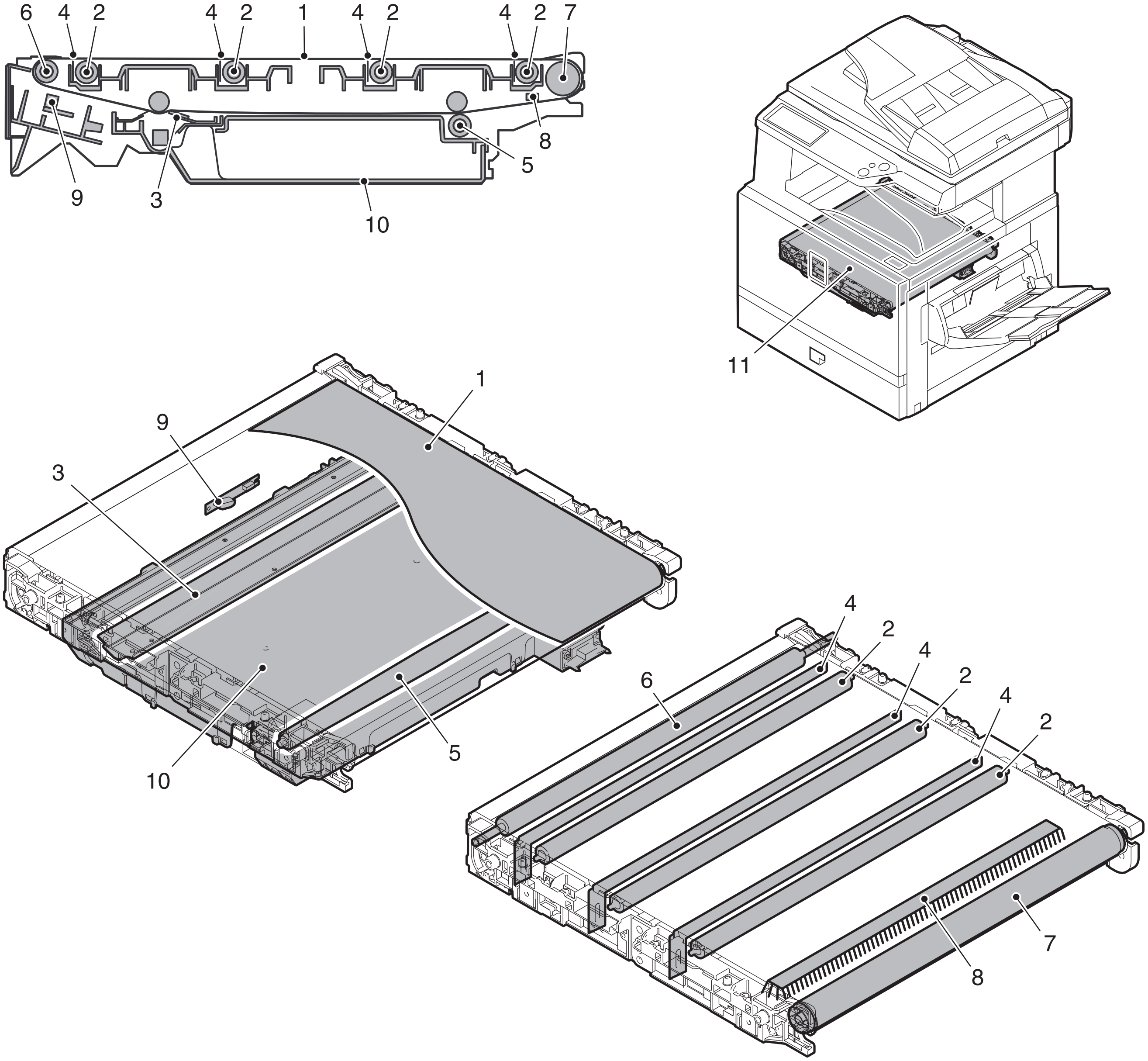
Unit Name	No.	Part name	When calling	50K	100K	150K	200K	250K	300K	350K	400K	Remark
Developing section (integrated with toner cartridge)		Toner cartridge	Replaced by user when toner empty (or at the specified distance covered)									



C. Transfer section

×: Check (Clean, replace, or adjust as necessary.) ❍: Clean ▲: Replace ∆: Adjust ☆: Lubricate ❑: Shift position

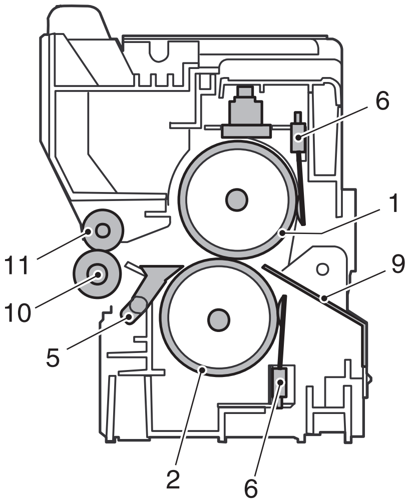
Unit Name	No.	Part name	When calling	50K	100K	150K	200K	250K	300K	350K	400K	Remark
Transfer section	1	Transfer belt		×	▲	×	▲	×	▲	×	▲	Replace at 100K or within 2 years.
	2	Transfer roller		×	▲	×	▲	×	▲	×	▲	
	3	Transfer belt cleaning blade		×	▲	×	▲	×	▲	×	▲	Replace at 100K or within 2 years.
	4	Transfer discharge sheet		×	❍	×	❍	×	❍	×	❍	
	5	Transfer belt cleaning roller		×	▲	×	▲	×	▲	×	▲	
	6	Transfer drive roller		×	×	×	×	×	×	×	×	
	7	Transfer follower roller		×	×	×	×	×	×	×	×	
	8	Transfer cleaning brush		×	×	×	×	×	×	×	×	
	9	Sensors		×	×	×	×	×	×	×	×	
	10	Waste toner tank unit	▲	×	▲	×	▲	×	▲	×	▲	When waste toner full is detected.
	11	Transfer belt unit		×	▲	×	▲	×	▲	×	▲	Replace the unit at 100K or within 2 years.

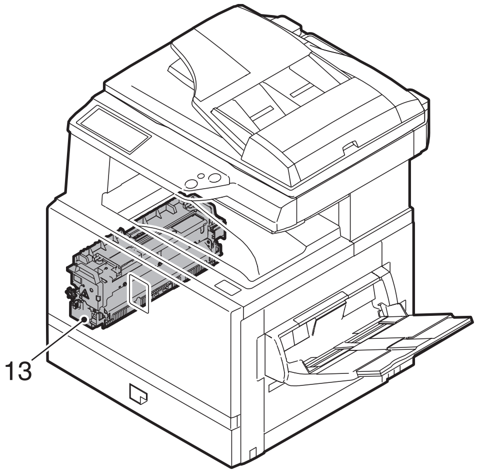


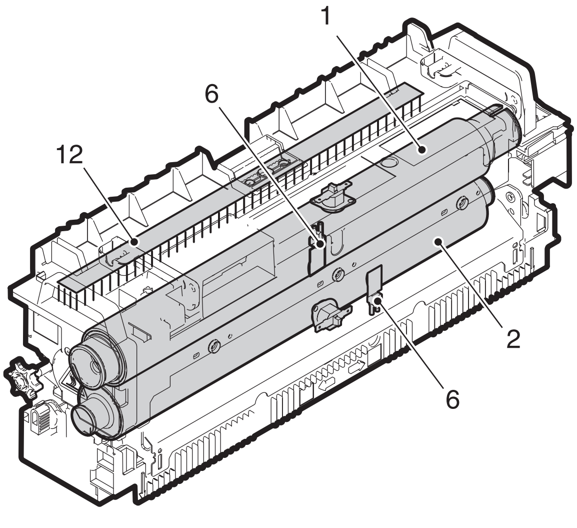
D. Fusing section

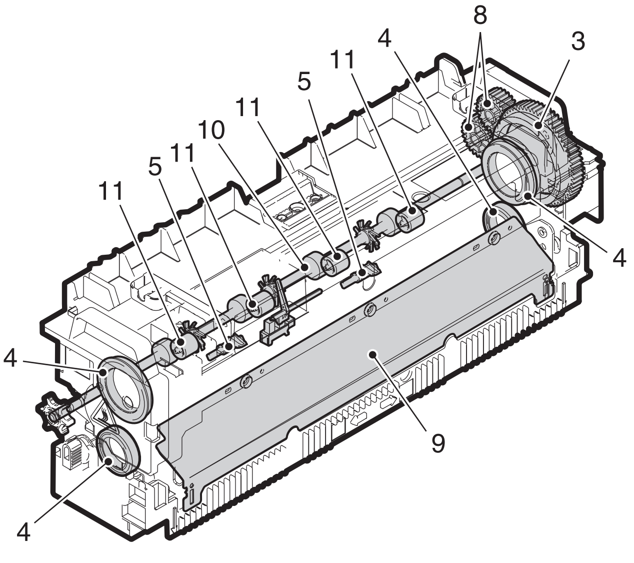
×: Check (Clean, replace, or adjust as necessary.) ❍: Clean ▲: Replace ∆: Adjust ☆: Lubricate ❑: Shift position

Unit Name	No.	Part name	When calling	50K	100K	150K	200K	250K	300K	350K	400K	Remark
Fusing section	1	Upper heat roller	×	×	▲	×	▲	×	▲	×	▲	Replace at 100K or within 2 years.
	2	Lower heat roller	×	×	▲	×	▲	×	▲	×	▲	Replace at 100K or within 2 years.
	3	Heat roller gear	×	×	▲	×	▲	×	▲	×	▲	100K
	4	Heat roller bearing	×	×	▲	×	▲	×	▲	×	▲	100K
	5	Separation pawl	×	×	▲	×	▲	×	▲	×	▲	100K
	6	Thermistor	×	×	▲	×	▲	×	▲	×	▲	100K
	–	Bearings	×	×	×	×	×	×	×	×	×	
	8	Gears	×	☆	☆	☆	☆	☆	☆	☆	☆	
	9	Paper guides	❍	❍	❍	❍	❍	❍	❍	❍	❍	
	10	Paper exit roller	×	×	×	×	×	×	×	×	×	
	11	Paper exit roller	×	×	×	×	×	×	×	×	×	
	12	Discharge brush	×	×	×	×	×	×	×	×	×	
	13	Fusing unit		×	▲	×	▲	×	▲	×	▲	Replace the unit at 100K or within 2 years.





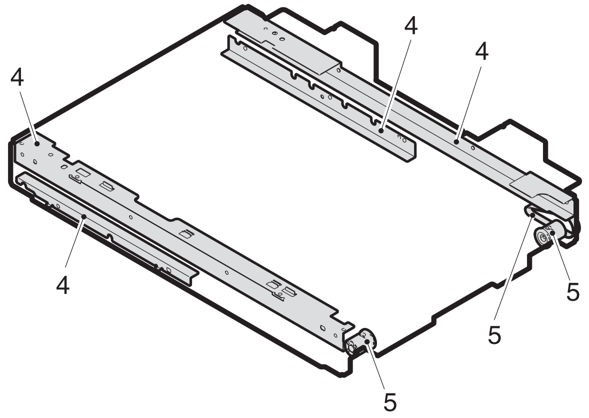


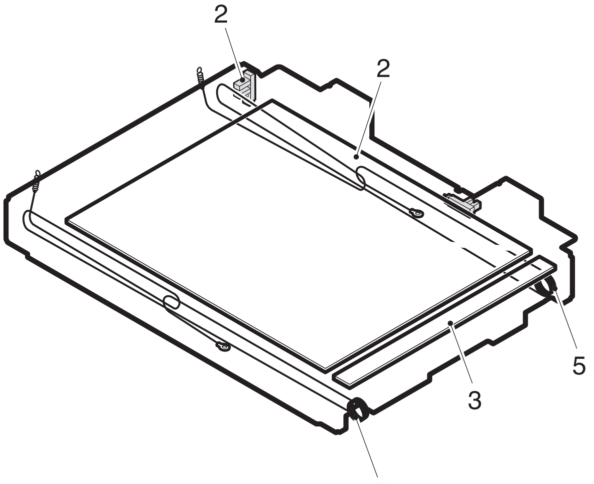


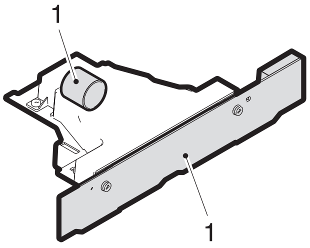
E. Optical section (Scanner section)

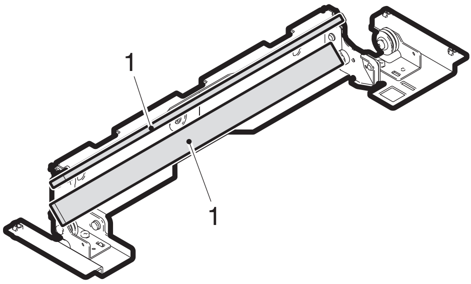
✕: Check (Clean, replace, or adjust as necessary.) ❍: Clean ▲: Replace ∆: Adjust ☆: Lubricate ❑: Shift position

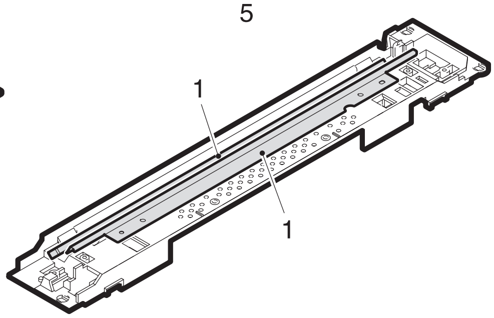
Unit Name	No.	Part name	When calling	50K	100K	150K	200K	250K	300K	350K	400K	Remark
Optical section	1	CCD, mirror, lens, reflector	❍	❍	❍	❍	❍	❍	❍	❍	❍	
	2	Table glass, sensors, OC	❍	❍	❍	❍	❍	❍	❍	❍	❍	
	3	SPF glass	❍	❍	❍	❍	❍	❍	❍	❍	❍	
	4	Rails	☆	☆	☆	☆	☆	☆	☆	☆	☆	
	5	Drive wire, pulley, pulley belt	✕	✕	✕	✕	✕	✕	✕	✕	✕	







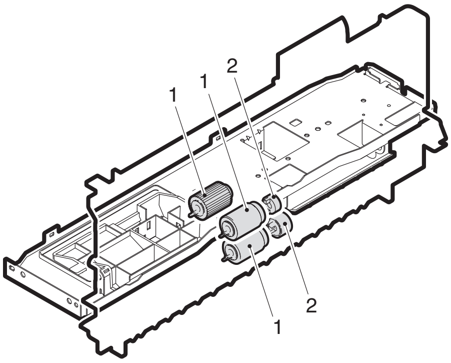


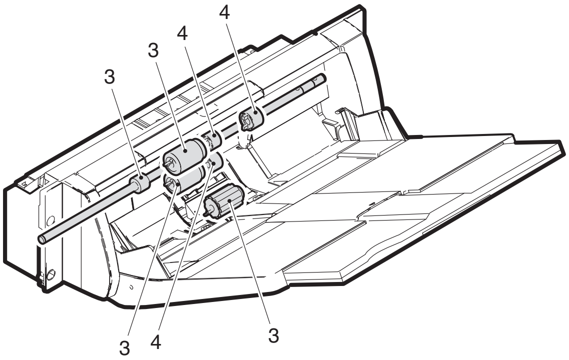


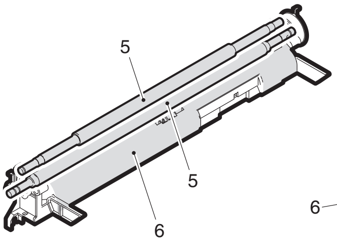
F. Paper feed section, transport section

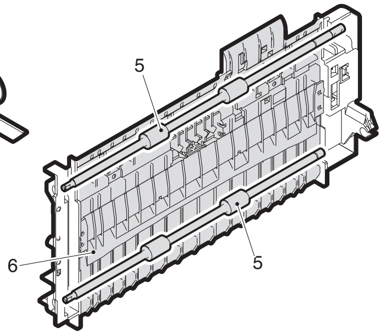
×: Check (Clean, replace, or adjust as necessary.) ❍: Clean ▲: Replace Δ: Adjust ☆: Lubricate ❏: Shift position

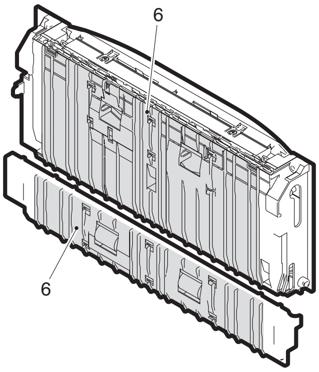
Unit Name	No.	Part name	When calling	50K	100K	150K	200K	250K	300K	350K	400K	Remark
Paper feed section	1	Cassette section paper feed rollers	❍	❍	×	❍	×	❍	×	❍	×	Replace according to the counter of each paper feed port or within 2 years.
	2	Torque limiter	×		×		×		×		×	
	3	Manual feed section paper feed rollers	❍	×	×	×	×	×	×	×	×	Replace according to the counter of each paper feed port or within 2 years.
	4	Torque limiter	×	×	×	×	×	×	×	×	×	
Transport section	5	Transport rollers	❍	❍	❍	❍	❍	❍	❍	❍	❍	
	6	Transport paper guides	❍	❍	❍	❍	❍	❍	❍	❍	❍	







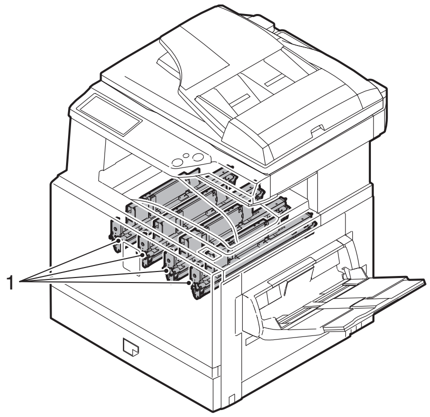




G. LED

×: Check (Clean, replace, or adjust as necessary.) ❍: Clean ▲: Replace Δ: Adjust ☆: Lubricate ❏: Shift position

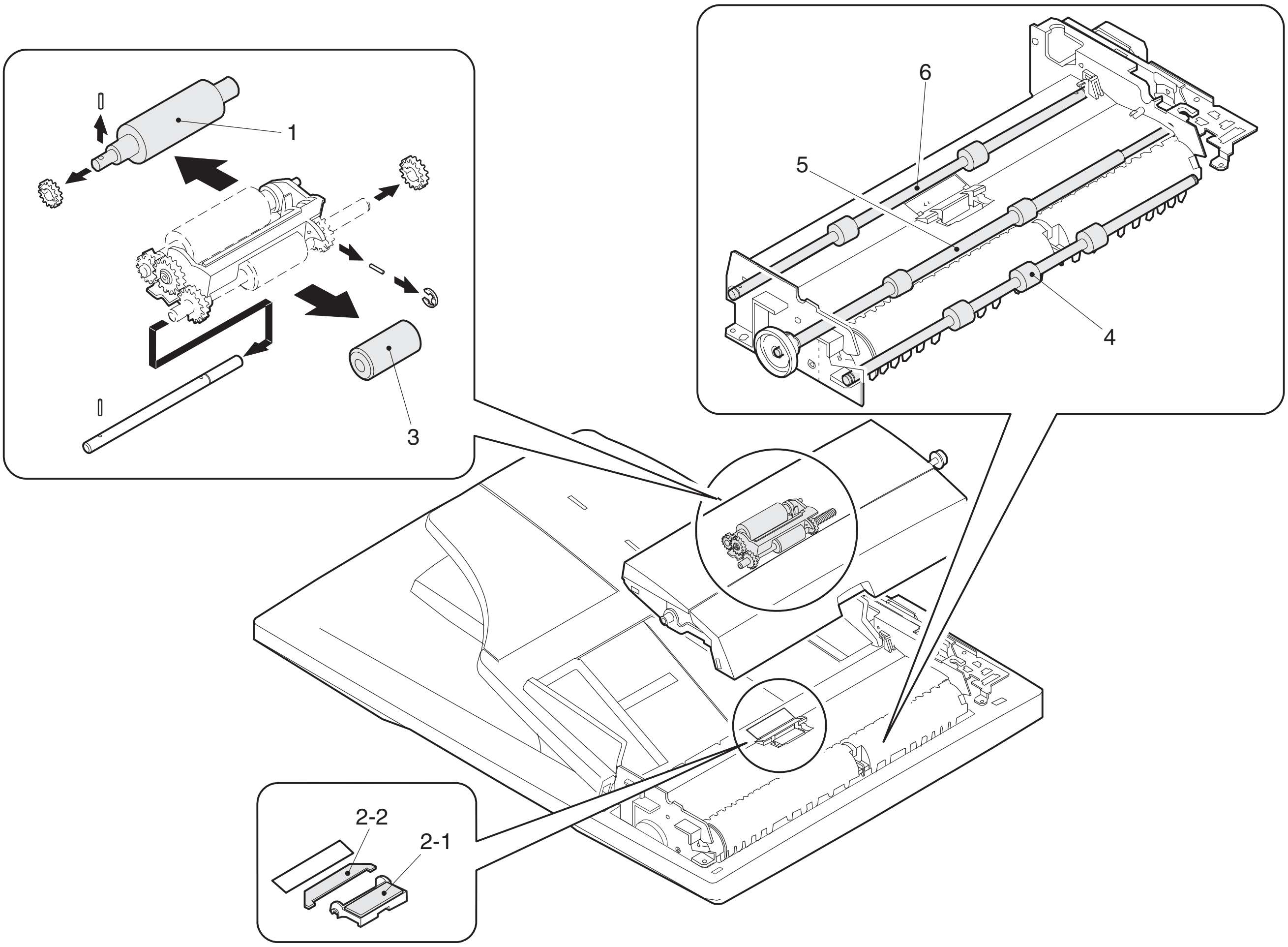
Unit Name	No.	Part name	When calling	50K	100K	150K	200K	250K	300K	350K	400K	Remark
LED	1	LED lens	❍	❍	❍	❍	❍	❍	❍	❍	❍	



H. RSPF section

✕: Check (Clean, replace, or adjust as necessary.) ❍: Clean ▲: Replace ∆: Adjust ☆: Lubricate ❏: Shift position

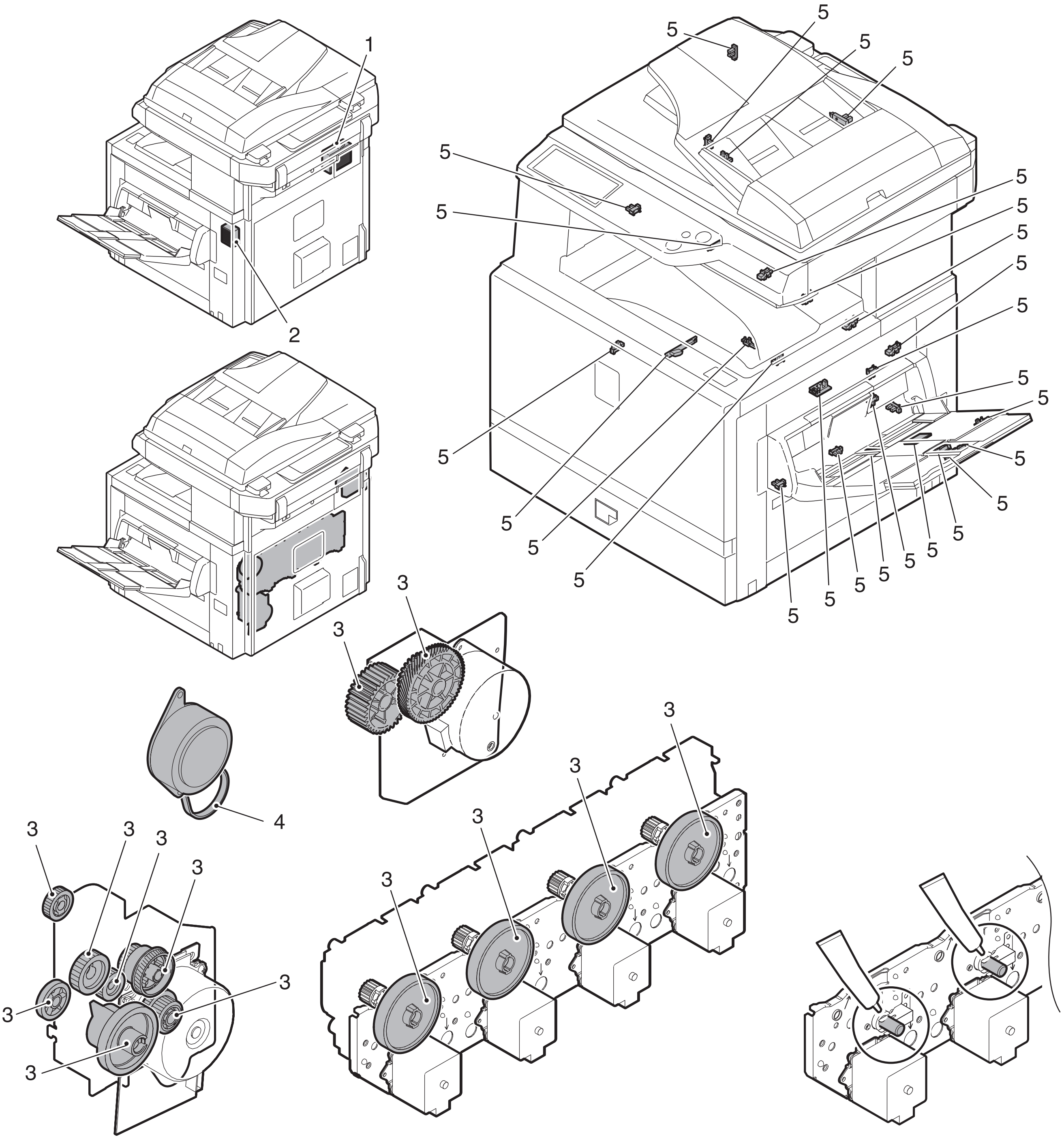
Unit Name	No.	Part name	When calling	50K	100K	150K	200K	250K	300K	350K	400K	Remark
RSPF section	1	Pickup roller	❍									
	2-1	Separation unit	❍									Replacement when worn down
	2-2	Separation sheet	❍									
	3	Paper feed roller	❍									
	4	PS roller	❍									
	5	Transport roller	❍									
	6	Paper exit roller	❍									



I. Filters, drive section, others

×: Check (Clean, replace, or adjust as necessary.) ❍: Clean ▲: Replace ∆: Adjust ☆: Lubricate ❏: Shift position

Unit Name	No.	Part name	When calling	50K	100K	150K	200K	250K	300K	350K	400K	Remark
Filters	1	Ozone filter	×	▲	▲	▲	▲	▲	▲	▲	▲	
	2	Sub ozone filter	×	▲	▲	▲	▲	▲	▲	▲	▲	
Drive section	3	Gears	☆	☆	☆	☆	☆	☆	☆	☆	☆	
	4	Belts	×	×	×	×	×	×	×	×	×	
Others	5	Sensors	×		×		×		×		×	



3. Relationship of maintenance timing, consumable part life, display message, and machine operations

A. Relationship of maintenance counter, display message, and machine operations

Counter name	Specified value	Message when SIM 21-1 setup value is exceeded	
		When SIM 26-38 is set to Print Allow.	When SIM 26-38 is set to Print Inhibit.
Maintenance counter (Total)	SIM 21-1 setup value	Message 1	Message 1
Maintenance counter (Color)		Message 2	Message 2
Both of maintenance counter (Total) and maintenance counter (Color)		Message 3	Message 3

Counter name	Specified value	Message when SIM 21-1 setup value x 110% is exceeded.	
		When SIM 26-38 is set to Print Allow.	When SIM 26-38 is set to Print Inhibit.
Maintenance counter (Total)	SIM 21-1 setup value x 110%	Message 1	Message 1
Maintenance counter (Color)		Message 2	Message 2
Both of maintenance counter (Total) and maintenance counter (Color)		Message 3	Message 3

Message No.	Message	Print job YES/NO
1	(Now is maintenance timing. Code: Tx)	YES
2	(Now is maintenance timing. Code: Cx)	YES
3	(Now is maintenance timing. Code: Ax)	YES

First digit of code: Kind of maintenance (T= Total, C= Color, A= Both)

Second digit of code: Maintenance cycle (A= 5K, B= 10K, C= 15K, D= 40K, E= 50K, F= 100K)

- Maintenance message is not displayed during a job (during operation/during job). (Message is displayed before/after a job.)
- When the maintenance counter (Total) exceeds the set value of SIM 21-1, the message is displayed. → The first digit of code is T.
- When the maintenance counter (Color) exceeds the set value of SIM 21-1, the message is displayed. → The first digit of code is C.
- When both of the maintenance counter (Total) and the maintenance counter (Color) exceed the set value of SIM 21-1, the message is displayed.
  → The first digit of code is A.
- When SIM 26-38 is set to Print Allow, any job can be executed even during message display.

When SIM 24-4 (Maintenance counter (Total, Color) clear) is executed after completion of maintenance, the message is cleared.

B. Relationship of transfer unit system counter, display message, and machine operations

Counter name	Near end value	Message when near end is over	
		When SIM 26-38 is set to Print Allow.	When SIM 26-38 is set to Print Inhibit.
Transfer unit print counter	49,000 [sheet] or 99,000 [sheet]	Message 1	Message 1
Accumulated mileage of transfer unit	20,890,333 [mm] or 34,951,002 [mm]	—	—
Number of use days of transfer unit	725 [day]	—	—

Counter name	End value	Message when end is over	
		When SIM 26-38 is set to Print Allow.	When SIM 26-38 is set to Print Inhibit.
Transfer unit print counter	50,000 [sheet] or 100,000 [sheet]	Message 1	Message 1
Accumulated mileage of transfer unit	21,316,667 [mm] or 35,221,940 [mm]	—	—
Number of use days of transfer unit	740 [day]	—	—

In addition to the above counters, the transfer waste-toner full sensor status is taken into consideration to make a message.

Sensor name	Near end value	Message when near end is detected	
		When SIM 26-38 is set to Print Allow.	When SIM 26-38 is set to Print Inhibit.
Transfer waste-toner full sensor	3 sec continuously ON	—	Message 1

Sensor name	End value	Message when end is detected	
		When SIM 26-38 is set to Print Allow.	When SIM 26-38 is set to Print Inhibit.
Transfer waste-toner full sensor	1,000 [sheet] after detection of near end	Message 1	Message 3

Message No.	Message	Print job YES/NO
1	(Now is maintenance timing. Code: TK)	YES
2	(Now is maintenance timing. Code: TT)	NO

Code: TK (Transfer Kit)

- The count-up timing and the count number of are synchronous between the transfer unit print counter and the maintenance counter.
- The transfer unit accumulated mileage is the product of the transfer unit drive speed (140 or 117 or 58.5mm/s) and the transfer unit drive time (measured by every second).
- The use days of the transfer unit is the days of passage after execution of SIM 24-4 (Transfer unit counter clear).
- Execute SIM 24-4 (Transfer unit counter clear) to clear the transfer unit print counter, the transfer unit accumulated mileage, the copy quantity counter after detection of near end by the sensor, and the use days of the transfer unit, and the message is cleared.

C. Relationship of fusing unit counter, display message, and machine operations

Counter name	Near end value	Message when near end is over	
		When SIM 26-38 is set to Print Allow.	When SIM 26-38 is set to Print Inhibit.
Fusing unit print counter	49,000 [sheet] or 99,000 [sheet]	Message 1	Message 1
Accumulated mileage of fusing unit	725 [day]	—	—

Counter name	End value	Message when near end is over	
		When SIM 26-38 is set to Print Allow.	When SIM 26-38 is set to Print Inhibit.
Fusing unit print counter	1,000 [sheet] after near end detection	Message 1	Message 1
Accumulated mileage of fusing unit	740 [day]	—	—

Message No.	Message	Print job YES/NO
1	(Now is maintenance timing. Code: FK)	YES

First digit of code, second digit of code: FK (Fuser Kit)

- The count-up timing and the count number of are synchronous between the fusing unit print counter and the maintenance counter.
- The use days of the fusing unit is the days of passage after execution of SIM 24-4 (Fusing unit counter clear).
- Execute SIM 24-4 (Fusing unit counter clear) to clear the fusing unit print counter and the use days of the fusing unit, and the message is cleared.

D. Relationship of drum cartridge system counters, messages, and machine operations

Counter name	Near end value	Message when near end is over	
		When SIM 26-38 is set to Print Allow.	When SIM 26-38 is set to Print Inhibit.
Drum cartridge print counter (K)	49,000 [Sheet]	Message 1	Message 1
Drum cartridge print counter (C)	49,000 [Sheet]	Message 2	Message 2
Drum cartridge print counter (M)	49,000 [Sheet]	Message 2	Message 2
Drum cartridge print counter (Y)	49,000 [Sheet]	Message 2	Message 2
Drum cartridge print counter (K)	64,000 [Sheet]	—	—
Drum cartridge print counter (C)	64,000 [Sheet]	—	—
Drum cartridge print counter (M)	64,000 [Sheet]	—	—
Drum cartridge print counter (Y)	64,000 [Sheet]	—	—
Drum cartridge accumulated mileage (K)	20,890,333 [mm]	—	—
Drum cartridge accumulated mileage (C)	20,890,333 [mm]	—	—
Drum cartridge accumulated mileage (M)	20,890,333 [mm]	—	—
Drum cartridge accumulated mileage (Y)	20,890,333 [mm]	—	—

Counter name	End value	Message when end is over	
		When SIM 26-38 is set to Print Allow.	When SIM 26-38 is set to Print Inhibit.
Drum cartridge print counter (K)	50,000 [Sheet]	Message 1	Message 4
Drum cartridge print counter (C)	50,000 [Sheet]	Message 2	Message 2 *1
Drum cartridge print counter (M)	50,000 [Sheet]	Message 2	Message 2 *1
Drum cartridge print counter (Y)	50,000 [Sheet]	Message 2	Message 2 *1
Drum cartridge print counter (K)	65,000 [Sheet]	—	—
Drum cartridge print counter (C)	65,000 [Sheet]	—	—
Drum cartridge print counter (M)	65,000 [Sheet]	—	—
Drum cartridge print counter (Y)	65,000 [Sheet]	—	—
Drum cartridge accumulated mileage (K)	21,316,667 [mm]	—	—
Drum cartridge accumulated mileage (C)	21,316,667 [mm]	—	—
Drum cartridge accumulated mileage (M)	21,316,667 [mm]	—	—
Drum cartridge accumulated mileage (Y)	21,316,667 [mm]	—	—

Message No.	Message	Print job YES/NO
1	(Now is maintenance timing. Code: DK)	YES
2	(Now is maintenance timing. Code: D∗)	YES
4	Now is maintenance timing. Code: DK	NO

*1: Monochrome print job YES, Color print job NO

First digit of code: D (Drum Kit)

Second digit of code: Color (K= Black, C= Cyan, M= Magenta, Y= Yellow) When two or more occur, the priority order is K, C, M, and Y.

- The count-up timing and the count number are synchronous between the drum cartridge print counter and the maintenance counter.
- The drum cartridge accumulated mileage is the product of the drum drive speed (117, 78, or 58.5mm/s) and the drum drive time by measuring for every second.
- Execute SIM 24-7 (Drum counter clear) to clear the drum cartridge counter and the drum cartridge of the said color, and the message is cleared.
- If there is any job being executed when the drum cartridge life end is detected, the paper feed in the machine is discharged and the machine is stopped. → Same as stop by paper empty.

E. Relationship of toner cartridge system counters, display messages, and machine operations

Sensor name	Near end value	Message when near end is detected			
		When SIM 26-38 is set to Print Allow.		When SIM 26-38 is set to Print Inhibit.	
		SIM 26-69 "0"	SIM 26-69 "1"	SIM 26-69 "0"	SIM 26-69 "1"
Toner cartridge accumulated mileage (K)	12,339,507 [mm]	Message 1		Message 1	
Toner cartridge accumulated mileage (C)	6,494,477 [mm]	Message 1		Message 1	
Toner cartridge accumulated mileage (M)	6,494,477 [mm]	Message 1		Message 1	
Toner cartridge accumulated mileage (Y)	6,494,477 [mm]	Message 1		Message 1	
Toner remaining quantity sensor (K)	5-time continuous detection of sensor light interruption time as lower than the specified level	Message 1	Message 2	Message 1	Message 2
Toner remaining quantity sensor (C)		Message 1	Message 3	Message 1	Message 3
Toner remaining quantity sensor (M)		Message 1	Message 3	Message 1	Message 3
Toner remaining quantity sensor (Y)		Message 1	Message 3	Message 1	Message 3

Counter name	End value	Message when end is over			
		When SIM 26-38 is set to Print Allow.		When SIM 26-38 is set to Print Inhibit.	
		SIM 26-69 "0"	SIM 26-69 "1"	SIM 26-69 "0"	SIM 26-69 "1"
Toner cartridge accumulated mileage (K)	12,988,960 [mm]	Message 1		Message 2	
Toner cartridge accumulated mileage (C)	7,143,920 [mm]	Message 1		Message 3	
Toner cartridge accumulated mileage (M)	7,143,920 [mm]	Message 1		Message 3	
Toner cartridge accumulated mileage (Y)	7,143,920 [mm]	Message 1		Message 3	
Toner cartridge pixel count (K)	6,732,001,280 [count] after detection of near end	Message 2		Message 2	
Toner cartridge pixel count (C)	6,732,001,280 [count] after detection of near end	Message 3		Message 3	
Toner cartridge pixel count (M)	6,732,001,280 [count] after detection of near end	Message 3		Message 3	
Toner cartridge pixel count (Y)	6,732,001,280 [count] after detection of near end	Message 3		Message 3	

Message No.	Message	Print job YES/NO
1	(KCMY toner quantity is near end) . . Necessary ones of K,C,M,Y are displayed.	YES
2	Replace the toner cartridge. K□□□	NO
3	(Replace the toner cartridge. □CMY) . . Necessary ones of C,M,Y are displayed.	Monochrome YES/Color NO

- The toner cartridge accumulated mileage and the threshold values of the near end value and the end value of the toner cartridge pixel counter are written in the CRUM, and control is performed according to them.
- Toner cartridge accumulated mileage is the product of the drum drive speed (117, 78, or 58.5mm/s) and the drum drive time measures for every second.
- If there is any job being executed when the toner cartridge life end is detected, the paper feed in the machine is discharged and the machine is stopped. → Same as stop by paper empty.

[11] TROUBLESHOOTING

[MAIN UNIT]

1. Outline

In case of a trouble in the machine, or when a consumable part has nearly reached or already reach the lifetime, the machine detects it, analyze it, and displays it on the display section and notifies the user and the serviceman by a voice message.

The user and the serviceman are bale to perform the proper countermeasures according to a voice message. In case of a trouble, the machine is stopped to restrict damage to a minimum in addition to a voice message.

2. Functions and purposes

1) Assures safety. (The machine is stopped when a trouble is detected.)
2) Restricts damage to a minimum. (The machine is stopped when a trouble is detected.)
3) By displaying the trouble content, the trouble position can be identified immediately and accurately. (An accurate repair work can be performed, improving the repair efficiency.)
4) By providing a preparatory warning when the lifetime of a consumable part is nearly reached, arrangement of the consumable part can be made in advance. (Stopping the machine by exhaustion of a consumable part is avoidable.)

3. Kinds of self diagnostic messages

The self diagnostic messages are classified as follows:

Class 1	User	Troubles and warning messages (paper jam, consumable part life expiration, etc.) which can be processed by the user.
	Service	Troubles and warning messages (motor trouble, maintenance, etc.) which can be processed only by a serviceman.
	Other	—
Class 2	Warning	Warning messages (consumable part life expiration, etc.) for the user, which are not directly related to any machine trouble.
	Trouble	Related to a machine trouble. The machine is stopped.
	Other	—

4. Self diagnostic operation

A. Self diagnostic operation and work flow

The machine always monitors its own status.

When the machine detects a trouble, it stops operations and displays a trouble message.

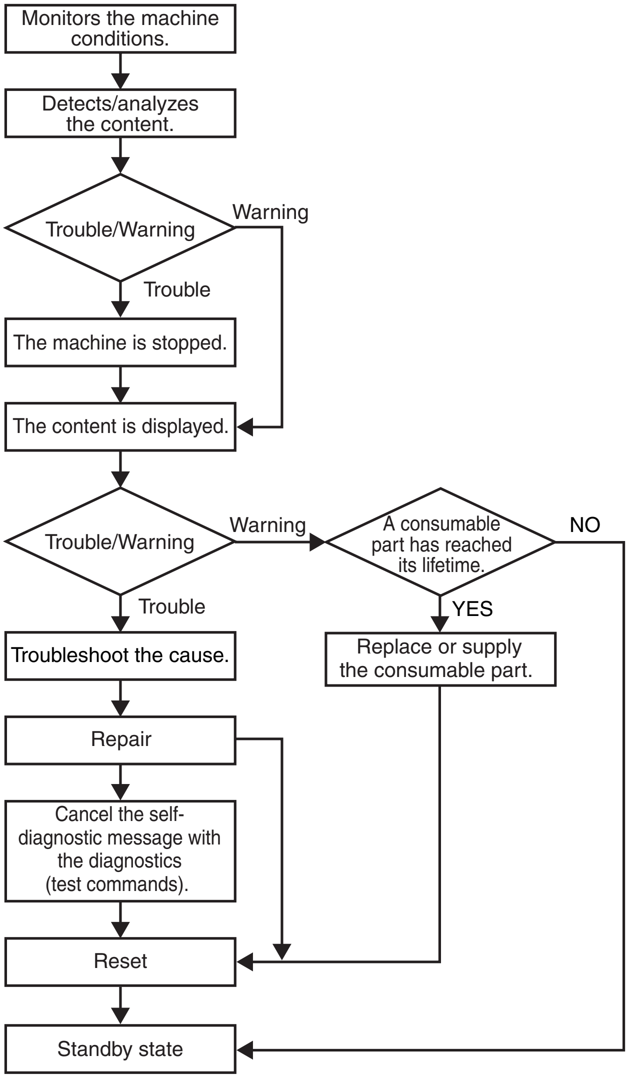
A warning message is provided mainly when a consumable part is nearly or completely exhausted.

When a warning message is provided, the machine may be stopped or may not be stopped depending on the message.

The trouble and warning messages are indicated with the LCD and lamps.

Some trouble messages may be automatically cleared after removing the trouble, and some must be cleared with the simulation.

Some warning messages of consumable parts are automatically cleared when the trouble is repaired. Some other warning messages must be cleared by a simulation.


Monitors the machine conditions.
Detects/analyzes the content.
Trouble/Warning
Warning
Trouble
The machine is stopped.
The content is displayed.
Trouble/Warning
Warning
A consumable part has reached its lifetime.
NO
Trouble
YES
Troubleshoot the cause.
Replace or supply the consumable part.
Repair
Cancel the self-diagnostic message with the diagnostics (test commands).
Reset
Standby state

5. List

Main code	Sub code	Content
C2	10	Transfer charger trouble (Black)
E7	01	Image data memory trouble
	10	Shading trouble (Black correction)
	11	Shading trouble (White correction)
	20	LED controller initial trouble (Black)
	21	LED controller initial trouble (Cyan)
	22	LED controller initial trouble (Magenta)
	23	LED controller initial trouble (Yellow)
	24	LED controller output trouble (Black)
	25	LED controller output trouble (Cyan)
	26	LED controller output trouble (Magenta)
	27	LED controller output trouble (Yellow)
	28	LED control ASIC connection abnormality
	40	Color correction data write abnormality
	41	Color correction data transfer abnormality
	80	ICU-SCN communication trouble (ICU detection)
	90	ICU-PCU communication trouble (ICU detection)
F1	00	Saddle finisher/sorter communication trouble (Machine detection)
	02	Saddle finisher transport motor trouble (Saddle finisher detection)
	03	Saddle finisher paddle motor trouble
	06	Saddle finisher slide motor trouble
	10	Saddle finisher staple motor trouble (Saddle finisher detection)
	11	Saddle finisher bundle process motor abnormality (Saddle finisher detection)
	15	Saddle finisher tray lift motor abnormality (Saddle finisher detection)
	19	Saddle finisher front alignment motor abnormality (Saddle finisher detection)
	20	Saddle finisher rear alignment motor abnormality (Saddle finisher detection)
	31	Saddle finisher fold sensor trouble
	32	Saddle finisher punch unit communication trouble
	33	Saddle finisher punch side registration motor trouble
	34	Saddle finisher punch motor trouble
	35	Saddle finisher punch side registration sensor trouble
	36	Saddle finisher punch registration sensor trouble
	37	Saddle finisher/sorter backup RAM trouble
	38	Saddle finisher punch backup RAM trouble
	39	Saddle finisher punch dust sensor trouble
	40	Saddle finisher punch power disconnection trouble
	83	Sorter push bar motor trouble
	89	Sorter bin shift motor trouble
	91	Automatic adjustment trouble of the paper sensor in the sorter bin
F2	39	Process thermistor breakdown
	40	Toner empty sensor abnormality (Black)
	41	Toner empty sensor abnormality (Cyan)
	42	Toner empty sensor abnormality (Magenta)
	43	Toner empty sensor abnormality (Yellow)
	44	Black image density sensor trouble (Transfer belt surface reflection ratio abnormality)
	45	Color image density sensor trouble (Calibration plate surface reflection ratio abnormality)
	58	Process humidity sensor breakdown
	70	Developing unit improper cartridge detection (Black)
	71	Developing unit improper cartridge detection (Cyan)
	72	Developing unit improper cartridge detection (Magenta)
	73	Developing unit improper cartridge detection (Yellow)
	74	Developing unit CRUM trouble (Black)
	75	Developing unit CRUM trouble (Cyan)
	76	Developing unit CRUM trouble (Magenta)
	77	Developing unit CRUM trouble (Yellow)
	78	Trouble of image density sensor for registration (Transfer belt surface reflection ratio abnormality)
	80	Half-tone process control 1st patch error (Black)
	81	Half-tone process control 1st patch error (Cyan)
	82	Half-tone process control 1st patch error (Magenta)
	83	Half-tone process control 1st patch error (Yellow)
	84	Half-tone process control 2nd patch error (Black)
	85	Half-tone process control 2nd patch error (Cyan)
	86	Half-tone process control 2nd patch error (Magenta)
	87	Half-tone process control 2nd patch error (Yellow)
	90	Half-tone process control limit error
F3	12	Cassette 1 lift up trouble
F6	00	ICU-FAX communication trouble (ICU detection)
	01	FAX expansion flash memory abnormality (ICU detection)
	04	FAX MODEM operation abnormality
	20	FAX write protect release
	21	Improper combination of the TEL/LIU PWB and the FAX soft switch.
	97	The FAX-BOX PWB is not one for the AR-C170M. (FAX detection)
	98	Improper combination of the FAX-BOX destination data and the main unit destination data
F7	01	FAX board EEPROM read/write error
F9	00	ICU-PRT communication trouble (ICU detection)
	01	PRT DRAM trouble
	03	NIC port check error
	20	HDD trouble (PRT controller detection)
H2	00	Thermistor open (HL1)
	01	Thermistor open (HL2)
H3	00	Fusing section high temperature trouble (THS1)
	01	Fusing section high temperature trouble (THS2)
H4	00	Fusing section low temperature trouble (HL1)
	01	Fusing section low temperature trouble (HL2)
H5	01	Five continuous detections of POD1 not-reached jam
L1	00	Mirror feed trouble

Main code	Sub code	Content
L3	00	Mirror return trouble
L4	02	Paper feed motor lock trouble
	06	Transfer belt lift motor trouble
	07	Transfer belt motor trouble
	11	Shift motor trouble
L8	01	Full wave signal not provided
	02	Full wave signal width abnormality
	04	Main power switch abnormality detection
PF	00	RIC copy inhibit signal reception
U0	00	ICU-OPE communication trouble (ICU/OPE detection)
U1	01	FAX battery abnormality
	02	RTC read trouble
U2	00	EEPROM read/write error (ICU detection)
	11	EEPROM check sum error (ICU detection)
	22	FAX backup SRAM memory check sum error
	30	Production No. data discrepancy (ICU ⇔ ICU)
	80	EEPROM read/write error (SCN)
	81	Adjustment value check sum error (SCN)
	90	EEPROM read/write error (PCU)
	91	Adjustment value check sum error (PCU)
U4	02	ADU alignment plate operation abnormality
U6	00	Desk communication trouble
	01	Desk tray 1 lift motor trouble
	02	Desk tray 2 lift motor trouble
	03	Desk tray 3 lift motor trouble
	09	LCC lift motor trouble
	10	Desk transport motor trouble
	20	LCC communication trouble
	21	LCC transport motor trouble
	22	LCC 24V power abnormality
	50	Desk incompatibility trouble
	51	LCC incompatibility trouble
U7	00	RIC communication trouble
UC	02	CPT-ASIC trouble (MFP PWB trouble)

6. Details

Main code	Sub code	Title	**Transfer charger trouble (Black)**	
C2	**10**	Display	Lamp/Message	
		Phenomenon	Detail	The difference between the belt surface output and the K-color patch density output does not reach the specified level. (Judged when installing a new developing unit.)
			Section	Transfer
		Case 1	Cause	TC-K output abnormality
			Check & Remedy	TC-K analog input/output abnormality. Replace the TC PWB.
		Case 2	Cause	MC output abnormality
			Check & Remedy	Replace the MC PWB.
		Case 3	Cause	Transfer unit trouble
			Check & Remedy	Replace the transfer unit.
		Case 4	Cause	PCU PWB trouble
			Check & Remedy	Replace the PCU PWB.
		Case 5	Cause	Connector, harness trouble (PCU PWB, TC PWB, MC PWB, transfer unit)
			Check & Remedy	Check contact. Replace the harness. Replace the PWB.

Main code	Sub code	Title	**Image data memory trouble**	
E7	**01**	Display	Lamp/Message	
		Phenomenon	Detail	The ICU image data memory (SDRAM) cannot be detected as 256MB or more. The required SDRAM capacity for the model is not provided.
			Section	ICU PWB
		Case 1	Cause	The SDRAM of ICU PWB is not installed. The SDRAM of ICU PWB is improperly installed.
			Check & Remedy	Check installation of the SDRAM of ICU ASIC PWB.
		Case 2	Cause	The SDRAM of ICU PWB does not operate properly.
			Check & Remedy	Use SIM 22-10 to check the capacity of the SDRAM. Replace the SDRAM of ICU PWB.
		Case 3	Cause	ICU PWB abnormality
			Check & Remedy	Replace the ICU PWB.

Main code	Sub code	Title	**Shading trouble (Black correction)**	
E7	**10**	Display	Lamp/Message	
		Phenomenon	Detail	CCD black reading level abnormality when the copy lamp is off.
			Section	CCD unit
		Case 1	Cause	Improper installation of the flat cable to the CCD unit.
			Check & Remedy	Check installation of the flat cable to the CCD unit.
		Case 2	Cause	CCD unit abnormality
			Check & Remedy	Check the CCD unit.
		Case 3	Cause	MFP PWB abnormality
			Check & Remedy	Check the MFP PWB.

Main code	Sub code	Title	**Shading trouble (White correction)**	
E7	**11**	Display	Lamp/Message	
		Phenomenon	Detail	CCD white reading level abnormality when the copy lamp is on.
			Section	CCD unit
		Case 1	Cause	Improper installation of the flat cable to the CCD unit.
			Check & Remedy	Check installation of the flat cable to the CCD unit.
		Case 2	Cause	Dirt on the mirror, the lens, or the reference white plate.
			Check & Remedy	Clean the mirror, the lens, or the reference white plate.
		Case 3	Cause	CCD unit abnormality
			Check & Remedy	Check the CCD unit.
		Case 4	Cause	MFP PWB abnormality
			Check & Remedy	Check the MFP PWB.

Main code	Sub code	Title	**LED controller initial trouble (Black)**	
E7	**20**	Display	Lamp/Message	
		Phenomenon	Detail	The initial process of the LED controller cannot be completed properly.
			Section	LED/ICU PWB
		Case 1	Cause	Disconnection of the LED head connector.
			Check & Remedy	Check connection of the LED head connector.
		Case 2	Cause	Disconnection of the harness inside the LED head.
			Check & Remedy	Replace the LED head unit.
		Case 3	Cause	ICU PWB abnormality
			Check & Remedy	Replace the ICU PWB.

Main code	Sub code	Title	**LED controller initial trouble (Cyan)**	
E7	**21**	Display	Lamp/Message	
		Phenomenon	Detail	The initial process of the LED controller cannot be completed properly.
			Section	LED/ICU PWB
		Case 1	Cause	Disconnection of the LED head connector.
			Check & Remedy	Check connection of the LED head connector
		Case 2	Cause	Disconnection of the harness inside the LED head.
			Check & Remedy	Replace the LED head unit.
		Case 3	Cause	ICU PWB abnormality
			Check & Remedy	Replace the ICU PWB.

Main code	Sub code	Title	**LED controller initial trouble (Magenta)**	
E7	**22**	Display	Lamp/Message	
		Phenomenon	Detail	The initial process of the LED controller cannot be completed properly.
			Section	LED/ICU PWB
		Case 1	Cause	Disconnection of the LED head connector.
			Check & Remedy	Check connection of the LED head connector
		Case 2	Cause	Disconnection of the harness inside the LED head.
			Check & Remedy	Replace the LED head unit.
		Case 3	Cause	ICU PWB abnormality
			Check & Remedy	Replace the ICU PWB.

Main code	Sub code	Title	**LED controller initial trouble (Yellow)**	
E7	**23**	Display	Lamp/Message	
		Phenomenon	Detail	The initial process of the LED controller cannot be completed properly.
			Section	LED/ICU PWB
		Case 1	Cause	Disconnection of the LED head connector
			Check & Remedy	Check connection of the LED head connector.
		Case 2	Cause	Disconnection of the harness inside the LED head.
			Check & Remedy	Replace the LED head unit.
		Case 3	Cause	ICU PWB abnormality
			Check & Remedy	Replace the ICU PWB.

Main code	Sub code	Title	**LED controller output trouble (Black)**	
E7	**24**	Display	Lamp/Message	
		Phenomenon	Detail	When printing, the print end signal for each page is not properly provided.
			Section	LED/ICU PWB
		Case 1	Cause	Disconnection of the LED head connector.
			Check & Remedy	Check connection of the LED head connector.
		Case 2	Cause	Disconnection of the harness inside the LED head.
			Check & Remedy	Replace the LED head unit.
		Case 3	Cause	ICU PWB abnormality
			Check & Remedy	Replace the ICU PWB.

Main code	Sub code	Title	**LED controller output trouble (Cyan)**	
E7	**25**	Display	Lamp/Message	
		Phenomenon	Detail	When printing, the print end signal for each page is not properly provided.
			Section	LED/ICU PWB
		Case 1	Cause	Disconnection of the LED head connector.
			Check & Remedy	Check connection of the LED head connector.
		Case 2	Cause	Disconnection of the harness inside the LED head.
			Check & Remedy	Replace the LED head unit.
		Case 3	Cause	ICU PWB abnormality
			Check & Remedy	Replace the ICU PWB.

Main code	Sub code	Title	**LED controller output trouble (Magenta)**	
E7	**26**	Display	Lamp/Message	
		Phenomenon	Detail	When printing, the print end signal for each page is not properly provided.
			Section	LED/ICU PWB
		Case 1	Cause	Disconnection of the LED head connector.
			Check & Remedy	Check connection of the LED head connector.
		Case 2	Cause	Disconnection of the harness inside the LED head.
			Check & Remedy	Replace the LED head unit.
		Case 3	Cause	ICU PWB abnormality
			Check & Remedy	Replace the ICU PWB.

Main code	Sub code	Title	**LED controller output trouble (Yellow)**	
E7	**27**	Display	Lamp/Message	
		Phenomenon	Detail	When printing, the print end signal for each page is not properly provided.
			Section	LED/ICU PWB
		Case 1	Cause	Disconnection of the LED head connector
			Check & Remedy	Check connection of the LED head connector.
		Case 2	Cause	Disconnection of the harness inside the LED head.
			Check & Remedy	Replace the LED head unit
		Case 3	Cause	ICU PWB abnormality
			Check & Remedy	Replace the ICU PWB.

Main code	Sub code	Title	**LED control ASIC connection abnormality**	
E7	**28**	Display	Lamp/Message	
		Phenomenon	Detail	Access error between the PCU PWB CPU and the LED control ASIC
			Section	ICU/PCU PWB
		Case 1	Cause	Disconnection of the ICU/ PCU PWB communication connector
			Check & Remedy	Check connection of the ICU/PCU PWB communication connector
		Case 2	Cause	ICU/PCU PWB communication harness trouble.
			Check & Remedy	Check the ICU/PCU PWB communication harness.
		Case 3	Cause	ICU PWB/PCU PWB trouble
			Check & Remedy	Check grounding of the machine. Replace the ICU PWB or the PCU PWB.

Main code	Sub code	Title	**Color correction data write abnormality**	
E7	**40**	Display	Lamp/Message	
		Phenomenon	Detail	Data write error to the Nand-Flash for holding color correction data
			Section	MFP PWB
		Case 1	Cause	Color correction data rewrite error
			Check & Remedy	Perform rewriting of color correction data again.
		Case 2	Cause	MFP PWB trouble
			Check & Remedy	Replace the MFP PWB.

Main code	Sub code	Title	**Color correction data transfer abnormality**	
E7	**41**	Display	Lamp/Message	
		Phenomenon	Detail	Data transfer error from the Nand-Flash for holding color correction data to the FC-RAM for holding color correction image process
			Section	MFP PWB
		Case 1	Cause	MFP PWB trouble
			Check & Remedy	Replace the MFP PWB.

Main code	Sub code	Title	**ICU-SCN communication trouble (ICU detection)**	
E7	**80**	Display	Lamp/Message	
		Phenomenon	Detail	Communication establishment error, framing, parity, protocol error
			Section	ICU/MFP PWB
		Case 1	Cause	Disconnection of the ICU/MFP PWB scanner communication connector. Defective harness of the ICU PWB and the MFP PWB.
			Check & Remedy	Check connection of the ICU PWB and the MFP PWB. Check the harness.
		Case 2	Cause	ICU/MFP PWB trouble
			Check & Remedy	Check grounding of the machine. Replace the ICU PWB or the MFP PWB.

Main code	Sub code	Title	**ICU-PCU communication trouble (ICU detection)**	
E7	**90**	Display	Lamp/Message	
		Phenomenon	Detail	Communication establishment error, framing, parity, protocol error
			Section	ICU/PCU PWB
		Case 1	Cause	Disconnection of the ICU/PCU PWB scanner communication connector. Defective harness of the ICU PWB and the PCU PWB.
			Check & Remedy	Check connection of the ICU PWB and the PCU PWB. Check the harness.
		Case 2	Cause	ICU/PCU PWB trouble
			Check & Remedy	Check grounding of the machine. Replace the ICU PWB or the PCU PWB.

Main code	Sub code	Title	**Saddle finisher/sorter communication trouble (Machine detection)**	
F1	**00**	Display	Lamp/Message	
		Phenomenon	Detail	Communication line test error when turning on the power or after canceling the exclusive simulation. Communication error with the saddle finisher/sorter.
			Section	PCU PWB and saddle finisher/sorter
		Case 1	Cause	Disconnection of the PCU-saddle finisher/sorter connector, defective contact or disconnection of the harness.
			Check & Remedy	Check the connector and the harness of the communication line.
		Case 2	Cause	Saddle finisher/sorter control PWB trouble
			Check & Remedy	Replace the saddle finisher/sorter control PWB.
		Case 3	Cause	Control PWB (PCU) trouble
			Check & Remedy	Replace the PCU PWB.
		Case 4	Cause	Malfunctions by noises
			Check & Remedy	—
		Common	Cancel method	Can be canceled by turning OFF/ON the power.

Main code	Sub code	Title	**Saddle finisher transport motor trouble (Saddle finisher detection)**	
F1	**02**	Display	Lamp/Message	
		Phenomenon	Detail	Transport motor drive trouble
			Section	Transport
		Case 1	Cause	Motor lock
			Check & Remedy	Use SIM 3-3 to check the transport motor operation.
		Case 2	Cause	Motor RPM abnormality
			Check & Remedy	Same as Case 1.
		Case 3	Cause	Over current to the motor
			Check & Remedy	Same as Case 1.
		Case 4	Cause	Saddle finisher control PWB trouble
			Check & Remedy	Same as Case 1.

Main code	Sub code	Title	**Saddle finisher paddle motor trouble**	
F1	**03**	Display	Lamp/Message	
		Phenomenon	Detail	Paddle motor operation trouble
			Section	Saddle finisher
		Case 1	Cause	Motor lock
			Check & Remedy	Use SIM 3-3 to check the motor operation.
		Case 2	Cause	Motor RPM abnormality
			Check & Remedy	Same as Case 1.
		Case 3	Cause	Over current to the motor
			Check & Remedy	Same as Case 1.
		Case 4	Cause	Saddle finisher control PWB trouble
			Check & Remedy	Same as Case 1.

Main code	Sub code	Title	**Saddle finisher slide motor trouble**	
F1	**06**	Display	Lamp/Message	
		Phenomenon	Detail	Slide motor operation trouble
			Section	Saddle finisher
		Case 1	Cause	Motor lock
			Check & Remedy	Use SIM 3-3 to check the motor operation.
		Case 2	Cause	Motor RPM abnormality
			Check & Remedy	Same as Case 1.
		Case 3	Cause	Over current to the motor
			Check & Remedy	Same as Case 1.
		Case 4	Cause	Saddle finisher control PWB trouble
			Check & Remedy	Same as Case 1.

Main code	Sub code	Title	**Saddle finisher staple motor trouble (Saddle finisher detection)**	
F1	**10**	Display	Lamp/Message	
		Phenomenon	Detail	Stapling operation trouble
			Section	Saddle finisher
		Case 1	Cause	Motor lock
			Check & Remedy	Use SIM 3-3 to check the staple motor operation.
		Case 2	Cause	Motor RPM abnormality
			Check & Remedy	Same as Case 1.
		Case 3	Cause	Over current to the motor
			Check & Remedy	Same as Case 1.
		Case 4	Cause	Saddle finisher control PWB trouble
			Check & Remedy	Same as Case 1.

Main code	Sub code	Title	**Saddle finisher bundle process motor abnormality (Saddle finisher detection)**	
F1	**11**	Display	Lamp/Message	
		Phenomenon	Detail	Bundle process motor trouble
			Section	Saddle finisher
		Case 1	Cause	Motor lock
			Check & Remedy	Use SIM 3-3 to check the bundle process motor operation.
		Case 2	Cause	Motor RPM abnormality
			Check & Remedy	Same as Case 1.
		Case 3	Cause	Over current to the motor
			Check & Remedy	Same as Case 1.
		Case 4	Cause	Saddle finisher control PWB trouble
			Check & Remedy	Same as Case 1.

Main code	Sub code	Title	**Saddle finisher tray lift motor abnormality (Saddle finisher detection)**	
F1	**15**	Display	Lamp/Message	
		Phenomenon	Detail	Lift motor trouble
			Section	Saddle finisher
		Case 1	Cause	Motor lock
			Check & Remedy	Use SIM 3-3 to check the tray lift motor operation.
		Case 2	Cause	Motor RPM abnormality
			Check & Remedy	Same as Case 1.
		Case 3	Cause	Over current to the motor
			Check & Remedy	Same as Case 1.
		Case 4	Cause	Saddle finisher control PWB trouble
			Check & Remedy	Same as Case 1.

Main code	Sub code	Title	**Saddle finisher front alignment motor abnormality (Saddle finisher detection)**	
F1	**19**	Display	Lamp/Message	
		Phenomenon	Detail	Front alignment motor trouble
			Section	Saddle finisher
		Case 1	Cause	Motor lock
			Check & Remedy	Use SIM 3-3 to check the front alignment motor operation.
		Case 2	Cause	Motor RPM abnormality
			Check & Remedy	Same as Case 1.
		Case 3	Cause	Over current to the motor
			Check & Remedy	Same as Case 1.
		Case 4	Cause	Saddle finisher control PWB trouble
			Check & Remedy	Same as Case 1.

Main code	Sub code	Title	**Saddle finisher rear alignment motor abnormality (Saddle finisher detection)**	
F1	**20**	Display	Lamp/Message	
		Phenomenon	Detail	Rear alignment motor trouble
			Section	Saddle finisher
		Case 1	Cause	Motor lock
			Check & Remedy	Use SIM 3-3 to check the rear alignment motor operation.
		Case 2	Cause	Motor RPM abnormality
			Check & Remedy	Same as Case 1.
		Case 3	Cause	Over current to the motor
			Check & Remedy	Same as Case 1.
		Case 4	Cause	Saddle finisher control PWB trouble
			Check & Remedy	Same as Case 1.

Main code	Sub code	Title	**Saddle finisher fold sensor trouble**	
F1	**31**	Display	Lamp/Message	
		Phenomenon	Detail	Sensor input value abnormality
			Section	Saddle finisher
		Case 1	Cause	Sensor breakage
			Check & Remedy	Use SIM 3-2 to check the sensor operation.
		Case 2	Cause	Harness disconnection
			Check & Remedy	Same as case 1.
		Case 3	Cause	Saddle finisher control PWB trouble
			Check & Remedy	Same as Case 1.

Main code	Sub code	Title	**Saddle finisher punch unit communication trouble**	
F1	**32**	Display	Lamp/Message	
		Phenomenon	Detail	Communication error between the saddle finisher and the punch unit
			Section	Saddle finisher
		Case 1	Cause	Improper connection or disconnection of the connector and the harness of the saddle finisher and the punch unit.
			Check & Remedy	Check the connector and the harness of the communication line.
		Case 2	Cause	Control PWB (PCU) trouble
			Check & Remedy	Replace the PCU PWB.
		Case 3	Cause	Saddle finisher control PWB trouble
			Check & Remedy	Replace the saddle finisher control PWB.
		Case 4	Cause	Malfunction by noises
			Check & Remedy	—
		Common	Cancel method	Can be canceled by turning OFF/ON the power.

Main code	Sub code	Title	**Saddle finisher punch side registration motor trouble**	
F1	**33**	Display	Lamp/Message	
		Phenomenon	Detail	Punch side registration motor operation trouble
			Section	Saddle finisher
		Case 1	Cause	Motor lock
			Check & Remedy	Use SIM 3-3 to check the punch side registration motor operation.
		Case 2	Cause	Motor RPM abnormality
			Check & Remedy	Same as Case 1.
		Case 3	Cause	Over current to the motor
			Check & Remedy	Same as Case 1.
		Case 4	Cause	Saddle finisher control PWB trouble
			Check & Remedy	Same as Case 1.

Main code	Sub code	Title	**Saddle finisher punch motor trouble**	
F1	**34**	Display	Lamp/Message	
		Phenomenon	Detail	Punch motor operation trouble
			Section	Saddle finisher
		Case 1	Cause	Motor lock
			Check & Remedy	Use SIM 3-3 to check the punch motor operation.
		Case 2	Cause	Motor RPM abnormality
			Check & Remedy	Same as Case 1.
		Case 3	Cause	Over current to the motor
			Check & Remedy	Same as Case 1.
		Case 4	Cause	Saddle finisher control PWB trouble
			Check & Remedy	Same as Case 1.

Main code	Sub code	Title	**Saddle finisher punch side registration sensor trouble**	
F1	**35**	Display	Lamp/Message	
		Phenomenon	Detail	Sensor input value abnormality
			Section	Saddle finisher
		Case 1	Cause	Sensor breakage
			Check & Remedy	Use SIM 3-2 to check the sensor operation.
		Case 2	Cause	Harness disconnection
			Check & Remedy	Same as case 1.
		Case 3	Cause	Saddle finisher control PWB trouble
			Check & Remedy	Same as Case 1.

Main code	Sub code	Title	**Saddle finisher punch registration sensor trouble**	
F1	**36**	Display	Lamp/Message	
		Phenomenon	Detail	Sensor input value abnormality
			Section	Saddle finisher
		Case 1	Cause	Sensor breakage
			Check & Remedy	Use SIM 3-2 to check the sensor operation.
		Case 2	Cause	Harness disconnection
			Check & Remedy	Same as case 1.
		Case 3	Cause	Saddle finisher control PWB trouble
			Check & Remedy	Same as Case 1.

Main code	Sub code	Title	**Saddle finisher/sorter backup RAM trouble**	
F1	**37**	Display	Lamp/Message	
		Phenomenon	Detail	Writing to the backup RAM is started but not completed in 250msec. When writing to the backup RAM, if the write data do not coincide with the read data, writing is performed again. However, the write data still do not coincide with the read data.
			Section	Saddle finisher/sorter
		Case 1	Cause	Saddle finisher control PWB, backup RAM trouble
			Check & Remedy	Replace the saddle finisher control PWB.
		Case 2	Cause	Saddle finisher control PWB trouble
			Check & Remedy	Same as Case 1.
		Case 3	Cause	Sorter control PWB, backup RAM trouble
			Check & Remedy	Replace the sorter control PWB, and perform the bin paper sensor sensitivity adjustment and the guide bar motor oscillation range adjustment.
		Case 4	Cause	Sorter control PWB trouble
			Check & Remedy	Same as Case 3.
		Case 5	Cause	Malfunction caused by noises
			Check & Remedy	Turn off the machine power, and turn it on again.

Main code	Sub code	Title	**Saddle finisher punch backup RAM trouble**	
F1	**38**	Display	Lamp/Message	
		Phenomenon	Detail	Abnormal transformation of punch unit backup RAM contents
			Section	Saddle finisher
		Case 1	Cause	Punch control PWB trouble
			Check & Remedy	Replace the punch control PWB.
		Case 2	Cause	Malfunction caused by noises
			Check & Remedy	—

Main code	Sub code	Title	**Saddle finisher punch dust sensor trouble**	
F1	**39**	Display	Lamp/Message	
		Phenomenon	Detail	Punch dust sensor detection trouble
			Section	Saddle finisher
		Case 1	Cause	Sensor breakage
			Check & Remedy	Use SIM 3-2 to check the sensor operation.
		Case 2	Cause	Harness disconnection
			Check & Remedy	Same as Case 1.
		Case 3	Cause	Saddle finisher control PWB trouble
			Check & Remedy	Same as Case 1.

Main code	Sub code	Title	**Saddle finisher punch power disconnection trouble**	
F1	**40**	Display	Lamp/Message	
		Phenomenon	Detail	The power disconnection of the punch unit is detected.
			Section	Saddle finisher
		Case 1	Cause	Harness disconnection
			Check & Remedy	Use SIM 3-3 to check the punching operation.
		Case 2	Cause	Punch control PWB trouble
			Check & Remedy	Same as Case 1.

Main code	Sub code	Title	**Sorter push bar motor trouble**	
F1	**83**	Display	Lamp/Message	
		Phenomenon	Detail	The push bar home position signal is not acknowledged within 2sec from the start of initializing. The home position sensor remains ON after 20 pulses of shift operation of the push bar from its home position.
			Section	Sorter
		Common	Check	Execute SIM 3-2 and 3-3 to check the push bar drive motor operations and the sensor operations.
		Case 1	Cause	Push bar motor trouble
			Check & Remedy	Replace the push bar motor.
		Case 2	Cause	Push bar home position sensor trouble
			Check & Remedy	Replace the push bar home position sensor.
		Case 3	Cause	The circuit breaker (CB1) is operating.
			Check & Remedy	Remove the cause for operation of the circuit breaker, and reset the circuit breaker.
		Case 4	Cause	There is a mechanical bur in the push bar shifting path.
			Check & Remedy	Repair the mechanism to remove the bur.
		Case 5	Cause	Sorter controller PWB trouble
			Check & Remedy	Replace the sorter controller PWB, and perform the bin paper sensor sensitivity adjustment and the guide bar motor oscillating range adjustment.

Main code	Sub code	Title	**Sorter bin shift motor trouble**	
F1	**89**	Display	Lamp/Message	
		Phenomenon	Detail	The lead cam position sensor signal is not acknowledged within 3.4sec (2.4sec) from the bin shift motor ON signal. The operation is not completed within 30sec from the start of bin's shift operation to its home position. The rotation sensor output signal is not detected within 0.25sec from output of the bin shift motor ON signal.
			Section	Sorter
		Common	Check	Execute SIM 3-2 and 3-3 to check the guide bar drive motor operations and the sensor operations. (Case 1, 2) Check the voltage (about 24V) between J8-1 and J8-2 on the bin shift motor driver PWB at the timing of the bin shift motor. (Case 3 to 5)
		Case 1	Cause	Cable trouble between the bin shift motor and the sorter controller PWB.
			Check & Remedy	Check and connect the cable properly between the bin shift motor and the sorter controller PWB.
		Case 2	Cause	The circuit breaker (CB1) is operating.
			Check & Remedy	Remove the cause for operation of the circuit breaker, and reset the circuit breaker.
		Case 3	Cause	Wiring trouble of the bin shift motor (M1).
			Check & Remedy	Correct wiring of the bin shift motor.
		Case 4	Cause	Bin shift motor trouble
			Check & Remedy	Replace the bin shift motor.
		Case 5	Cause	Sorter controller PWB trouble
			Check & Remedy	Replace the sorter controller PWB, and perform the bin paper sensor sensitivity adjustment and the guide bar motor oscillating range adjustment.
		Case 6	Cause	Bin shift mechanism trouble
			Check & Remedy	Repair the mechanism.

Main code	Sub code	Title	Automatic adjustment trouble of the paper sensor in the sorter bin	
F1	**91**	Display	Lamp/Message	
		Phenomenon	Detail	Sensor output abnormality when adjusting the sensor detection level.
			Section	Sorter
		Common	Check	Execute SIM 3-2 to check the sensor output.
		Case 1	Cause	Trouble of the paper sensor in the bin.
			Check & Remedy	Replace the paper sensor in the bin.
		Case 2	Cause	Sorter controller PWB trouble
			Check & Remedy	Replace the sorter controller PWB, and perform the sensor sensitivity adjustment in the bin and the guide bar motor oscillation range adjustment.

Main code	Sub code	Title	Process thermistor breakdown	
F2	**39**	Display	Lamp/Message	
		Phenomenon	Detail	Process thermistor open
			Section	Drum cartridge
		Case 1	Cause	Process thermistor trouble
			Check & Remedy	Replace the process thermistor.
		Case 2	Cause	Disconnection of the process thermistor harness.
			Check & Remedy	Check connection of the connector and the harness of the process thermistor.
		Case 3	Cause	PCU PWB trouble
			Check & Remedy	Replace the PCU PWB.

Main code	Sub code	Title	Toner empty sensor abnormality (Black)	
F2	**40**	Display	Lamp/Message	
		Phenomenon	Detail	Toner empty sensor output abnormality
			Section	Cartridge
		Case 1	Cause	Connector harness trouble, connector disconnection
			Check & Remedy	1. Check connection of the toner empty sensor. → Connect it properly. 2. Check connection of the connector harness to the PCU PWB. → Connect it properly. 3. Check connection of the cartridge. → Connect it properly. 4. Check for disconnection of the harness. → Replace the harness.
		Case 2	Cause	Cartridge trouble
			Check & Remedy	Replace the cartridge.

Main code	Sub code	Title	Toner empty sensor abnormality (Cyan)	
F2	**41**	Display	Lamp/Message	
		Phenomenon	Detail	Toner empty sensor output abnormality
			Section	Cartridge
		Case 1	Cause	Connector harness trouble, connector disconnection
			Check & Remedy	1. Check connection of the toner empty sensor. → Connect it properly. 2. Check connection of the connector harness to the PCU PWB. → Connect it properly. 3. Check connection of the cartridge. → Connect it properly. 4. Check for disconnection of the harness. → Replace the harness.
		Case 2	Cause	Cartridge trouble
			Check & Remedy	Replace the cartridge.

Main code	Sub code	Title	Toner empty sensor abnormality (Magenta)	
F2	**42**	Display	Lamp/Message	
		Phenomenon	Detail	Toner empty sensor output abnormality
			Section	Cartridge
		Case 1	Cause	Connector harness trouble, connector disconnection
			Check & Remedy	1. Check connection of the toner empty sensor. → Connect it properly. 2. Check connection of the connector harness to the PCU PWB. → Connect it properly. 3. Check connection of the cartridge. → Connect it properly. 4. Check for disconnection of the harness. → Replace the harness.
		Case 2	Cause	Cartridge trouble
			Check & Remedy	Replace the cartridge.

Main code	Sub code	Title	**Toner empty sensor abnormality (Yellow)**	
F2	**43**	Display	Lamp/Message	
		Phenomenon	Detail	Toner empty sensor output abnormality
			Section	Cartridge
		Case 1	Cause	Connector harness trouble, connector disconnection
			Check & Remedy	1. Check connection of the toner empty sensor. → Connect it properly. 2. Check connection of the connector harness to the PCU PWB. → Connect it properly. 3. Check connection of the cartridge. → Connect it properly. 4. Check for disconnection of the harness. → Replace the harness.
		Case 2	Cause	Cartridge trouble
			Check & Remedy	Replace the cartridge.

Main code	Sub code	Title	**Black image density sensor trouble (Transfer belt surface reflection ratio abnormality)**	
F2	**44**	Display	Lamp/Message	
		Phenomenon	Detail	Before starting process control, the transfer belt surface is scanned with the image density sensor to adjust the sensor gain so that the output becomes a fixed value. However, when the sensor gain is changed, the output is not within the specified range.
			Section	—
		Common	Check	Use SIM 44-2 to adjust the process control sensor gain.
		Case 1	Cause	When "Error" occurs in SIM 44-2: 1. Dirt/defect of the image density sensor 2. Disconnection of the harness between the PCU PWB and the image density sensor 3. Calibration plate solenoid operation trouble
			Check & Remedy	1. Clean/replace the image density sensor. 2. Connect/replace the harness between the PCU PWB and the image density sensor. 3. Replace the calibration plate solenoid.
		Case 2	Cause	When SIM 44-2 is completed: 1. Insufficient cleaning of the transfer belt.
			Check & Remedy	1. Check the transfer belt surface.

Main code	Sub code	Title	**Color image density sensor trouble (Calibration plate surface reflection ratio abnormality)**	
F2	**45**	Display	Lamp/Message	
		Phenomenon	Detail	Before starting process control, the calibration plate surface is scanned with the image density sensor to adjust the sensor gain so that the output becomes a fixed value. However, when the sensor gain is changed, the output is not within the specified range.
			Section	—
		Common	Check	Use SIM 44-2 to adjust the process control sensor gain.
		Case 1	Cause	When "Error" occurs in SIM 44-2: 1. Dirt/defect of the image density sensor 2. Disconnection of the harness between the PCU PWB and the image density sensor
			Check & Remedy	1. Clean/replace the image density sensor. 2. Connect/replace the harness between the PCU PWB and the image density sensor.
		Case 2	Cause	When SIM 44-2 is completed: 1. Dirt on the calibration plate, calibration plate solenoid operation trouble
			Check & Remedy	1. Clean the calibration plate. Replace the calibration plate solenoid.

Main code	Sub code	Title	**Process humidity sensor breakdown**	
F2	**58**	Display	Lamp/Message	
		Phenomenon	Detail	Process humidity sensor open
			Section	Process
		Case 1	Cause	Process humidity sensor harness disconnection
			Check & Remedy	Check connection of the connector and the harness of the process humidity sensor.
		Case 2	Cause	Process humidity sensor trouble
			Check & Remedy	Replace the process humidity sensor.
		Case 3	Cause	PCU PWB trouble
			Check & Remedy	Replace the PCU PWB.

Main code	Sub code	Title	**Developing unit improper cartridge detection (Black)**	
F2	**70**	Display	Lamp/Message	
		Phenomenon	Detail	When detecting the normal CRUM of the cartridge, improper data are detected in the CRUM contents.
			Section	Developing
		Case 1	Cause	Insertion of an improper cartridge. Developing unit trouble
			Check & Remedy	Replace the developing unit.

Main code	Sub code	Title	**Developing unit improper cartridge detection (Cyan)**	
F2	**71**	Display	Lamp/Message	
		Phenomenon	Detail	When detecting the normal CRUM of the cartridge, improper data are detected in the CRUM contents.
			Section	Developing
		Case 1	Cause	Insertion of an improper cartridge. Developing unit trouble
			Check & Remedy	Replace the developing unit.

Main code	Sub code	Title	**Developing unit improper cartridge detection (Magenta)**	
F2	**72**	Display	Lamp/Message	
		Phenomenon	Detail	When detecting the normal CRUM of the cartridge, improper data are detected in the CRUM contents.
			Section	Developing
		Case 1	Cause	Insertion of an improper cartridge. Developing unit trouble
			Check & Remedy	Replace the developing unit.

Main code	Sub code	Title	**Developing unit improper cartridge detection (Yellow)**	
F2	**73**	Display	Lamp/Message	
		Phenomenon	Detail	When detecting the normal CRUM of the cartridge, improper data are detected in the CRUM contents.
			Section	Developing
		Case 1	Cause	Insertion of an improper cartridge. Developing unit trouble
			Check & Remedy	Replace the developing unit.

Main code	Sub code	Title	**Developing unit CRUM trouble (Black)**	
F2	**74**	Display	Lamp/Message	
		Phenomenon	Detail	CRUM read/write error
			Section	Developing
		Case 1	Cause	Improper connection or disconnection of the connector and the harness between the PCU and the CRUM.
			Check & Remedy	Check the connector and the harness between the PCU and the CRUM.
		Case 2	Cause	Developing unit trouble
			Check & Remedy	Replace the developing unit.
		Case 3	Cause	Control PWB (PCU) trouble
			Check & Remedy	Replace the PCU PWB.

Main code	Sub code	Title	**Developing unit CRUM trouble (Cyan)**	
F2	**75**	Display	Lamp/Message	
		Phenomenon	Detail	CRUM read/write error
			Section	Developing
		Case 1	Cause	Improper connection or disconnection of the connector and the harness between the PCU and the CRUM.
			Check & Remedy	Check the connector and the harness between the PCU and the CRUM.
		Case 2	Cause	Developing unit trouble
			Check & Remedy	Replace the developing unit.
		Case 3	Cause	Control PWB (PCU) trouble
			Check & Remedy	Replace the PCU PWB.

Main code	Sub code	Title	**Developing unit CRUM trouble (Magenta)**	
F2	**76**	Display	Lamp/Message	
		Phenomenon	Detail	CRUM read/write error
			Section	Developing
		Case 1	Cause	Improper connection or disconnection of the connector and the harness between the PCU and the CRUM.
			Check & Remedy	Check the connector and the harness between the PCU and the CRUM.
		Case 2	Cause	Developing unit trouble
			Check & Remedy	Replace the developing unit.
		Case 3	Cause	Control PWB (PCU) trouble
			Check & Remedy	Replace the PCU PWB.

Main code	Sub code	Title	**Developing unit CRUM trouble (Yellow)**	
F2	**77**	Display	Lamp/Message	
		Phenomenon	Detail	CRUM read/write error
			Section	Developing
		Case 1	Cause	Improper connection or disconnection of the connector and the harness between the PCU and the CRUM.
			Check & Remedy	Check the connector and the harness between the PCU and the CRUM.
		Case 2	Cause	Developing unit trouble
			Check & Remedy	Replace the developing unit.
		Case 3	Cause	Control PWB (PCU) trouble
			Check & Remedy	Replace the PCU PWB.

Main code	Sub code	Title	**Trouble of image density sensor for registration (Transfer belt surface reflection ratio abnormality)**	
F2	**78**	Display	Lamp/Message	
		Phenomenon	Detail	Before starting registration, the transfer belt surface is scanned with the image density sensor to adjust the sensor gain so that the output becomes a fixed value. However, when the sensor gain is changed, the value is not within the specified range.
			Section	—
		Case 1	Cause	Image density sensor trouble, disconnection of the harness between the PCU PWB and the image density sensor, dirt on the image density sensor.
			Check & Remedy	Check the sensor and the harness.
		Case 2	Cause	Calibration plate solenoid operation trouble
			Check & Remedy	Check the calibration plate solenoid operation.
		Case 3	Cause	Insufficient cleaning of the transfer belt.
			Check & Remedy	Check the transfer belt surface.

Main code	Sub code	Title	**Half-tone process control 1st patch error (Black)**	
F2	**80**	Display	Lamp/Message	
		Phenomenon	Detail	1st step of execution of half-tone process control. The low-density rising point or the high-density rising point cannot be calculated from the linear approximation formula of the ratio of the sensor output for the print gradation value obtained from the patch print result. <The trouble is saved in the trouble history, but F2 trouble is not displayed. The operation is made with the previous correction value.>
			Section	—
		Common	Check	Use SIM 44-2 to adjust the process control sensor gain.
		Case 1	Cause	When "Error" occurs in the gain adjustment of SIM 44-2: 1. Disconnection of the harness between the PCU PWB and the image density sensor. 2. Image density sensor dirt/trouble
			Check & Remedy	1. Check connection of the harness between the PCU PWB and the image density sensor. 2. Clean/replace the image density sensor.
		Case 2	Cause	When SIM 44-2 gain adjustment is completed: Insufficient cleaning of the transfer belt, calibration plate solenoid operation trouble
			Check & Remedy	Check the drum surface and the belt surface.

Main code	Sub code	Title	**Half-tone process control 1st patch error (Cyan)**	
F2	**81**	Display	Lamp/Message	
		Phenomenon	Detail	1st step of execution of half-tone process control. The low-density rising point or the high-density rising point cannot be calculated from the linear approximation formula of the ratio of the sensor output for the print gradation value obtained from the patch print result. <The trouble is saved in the trouble history, but F2 trouble is not displayed. The operation is made with the previous correction value.>
			Section	—
		Common	Check	Use SIM 44-2 to adjust the process control sensor gain.

Main code	Sub code	Title	**Half-tone process control 1st patch error (Cyan)**	
F2	**81**	Case 1	Cause	When "Error" occurs in the gain adjustment of SIM 44-2: 1. Disconnection of the harness between the PCU PWB and the image density sensor. 2. Image density sensor dirt/trouble
			Check & Remedy	1. Check connection of the harness between the PCU PWB and the image density sensor. 2. Clean/replace the image density sensor.
		Case 2	Cause	When SIM 44-2 gain adjustment is completed: Insufficient cleaning of the transfer belt, calibration plate solenoid operation trouble
			Check & Remedy	Check the drum surface and the belt surface.

Main code	Sub code	Title	**Half-tone process control 1st patch error (Magenta)**	
F2	**82**	Display	Lamp/Message	
		Phenomenon	Detail	1st step of execution of half-tone process control. The low-density rising point or the high-density rising point cannot be calculated from the linear approximation formula of the ratio of the sensor output for the print gradation value obtained from the patch print result. <The trouble is saved in the trouble history, but F2 trouble is not displayed. The operation is made with the previous correction value.>
			Section	—
		Common	Check	Use SIM 44-2 to adjust the process control sensor gain.
		Case 1	Cause	When "Error" occurs in the gain adjustment of SIM 44-2: 1. Disconnection of the harness between the PCU PWB and the image density sensor. 2. Image density sensor dirt/trouble
			Check & Remedy	1. Check connection of the harness between the PCU PWB and the image density sensor. 2. Clean/replace the image density sensor.

Main code	Sub code	Title	**Half-tone process control 1st patch error (Magenta)**	
F2	**82**	Case 2	Cause	When SIM 44-2 gain adjustment is completed: Insufficient cleaning of the transfer belt, calibration plate solenoid operation trouble
			Check & Remedy	Check the drum surface and the belt surface.

Main code	Sub code	Title	**Half-tone process control 1st patch error (Yellow)**	
F2	**83**	Display	Lamp/Message	
		Phenomenon	Detail	1st step of execution of half-tone process control. The low-density rising point or the high-density rising point cannot be calculated from the linear approximation formula of the ratio of the sensor output for the print gradation value obtained from the patch print result. <The trouble is saved in the trouble history, but F2 trouble is not displayed. The operation is made with the previous correction value.>
			Section	—
		Common	Check	Use SIM 44-2 to adjust the process control sensor gain.
		Case 1	Cause	When "Error" occurs in the gain adjustment of SIM 44-2: 1. Disconnection of the harness between the PCU PWB and the image density sensor. 2. Image density sensor dirt/trouble
			Check & Remedy	1. Check connection of the harness between the PCU PWB and the image density sensor. 2. Clean/replace the image density sensor.
		Case 2	Cause	When SIM 44-2 gain adjustment is completed: Insufficient cleaning of the transfer belt, calibration plate solenoid operation trouble
			Check & Remedy	Check the drum surface and the belt surface.

Main code	Sub code	Title	**Half-tone process control 2nd patch error (Black)**	
F2	**84**	Display	Lamp/Message	
		Phenomenon	Detail	2nd step of execution of half-tone process control. When connecting the approximation formula (the relationship of sensor output ratios for the print gradation values) in the low-density section and that in the high-density section obtained from the patch print result, DUTY1 for 20% of output ratio in the low-density section is greater than DUTY2 for 25% of output ratio in the high-density section. <The trouble is saved in the trouble history, but F2 trouble is not displayed. The operation is made with the previous correction value.>
			Section	—
		Common	Check	Use SIM 44-2 to adjust the process control sensor gain.
		Case 1	Cause	When "Error" occurs in the gain adjustment of SIM 44-2: 1. Disconnection of the harness between the PCU PWB and the image density sensor. 2. Image density sensor dirt/trouble
			Check & Remedy	1. Check connection of the harness between the PCU PWB and the image density sensor. 2. Clean/replace the image density sensor.
		Case 2	Cause	When SIM 44-2 gain adjustment is completed: Insufficient cleaning of the transfer belt, calibration plate solenoid operation trouble
			Check & Remedy	Check the drum surface and the belt surface.

Main code	Sub code	Title	**Half-tone process control 2nd patch error (Cyan)**	
F2	**85**	Display	Lamp/Message	
		Phenomenon	Detail	2nd step of execution of half-tone process control. When connecting the approximation formula (the relationship of sensor output ratios for the print gradation values) in the low-density section and that in the high-density section obtained from the patch print result, DUTY1 for 20% of output ratio in the low-density section is greater than DUTY2 for 25% of output ratio in the high-density section. <The trouble is saved in the trouble history, but F2 trouble is not displayed. The operation is made with the previous correction value.>
			Section	—
		Common	Check	Use SIM 44-2 to adjust the process control sensor gain.
		Case 1	Cause	When "Error" occurs in the gain adjustment of SIM 44-2: 1. Disconnection of the harness between the PCU PWB and the image density sensor. 2. Image density sensor dirt/trouble.
			Check & Remedy	1. Check connection of the harness between the PCU PWB and the image density sensor. 2. Clean/replace the image density sensor.
		Case 2	Cause	When SIM 44-2 gain adjustment is completed: Insufficient cleaning of the transfer belt, calibration plate solenoid operation trouble
			Check & Remedy	Check the drum surface and the belt surface.

Main code	Sub code	Title	**Half-tone process control 2nd patch error (Magenta)**	
F2	**86**	Display	Lamp/Message	
		Phenomenon	Detail	2nd step of execution of half-tone process control. When connecting the approximation formula (the relationship of sensor output ratios for the print gradation values) in the low-density section and that in the high-density section obtained from the patch print result, DUTY1 for 20% of output ratio in the low-density section is greater than DUTY2 for 25% of output ratio in the high-density section. <The trouble is saved in the trouble history, but F2 trouble is not displayed. The operation is made with the previous correction value.>
			Section	—
		Common	Check	Use SIM 44-2 to adjust the process control sensor gain.
		Case 1	Cause	When "Error" occurs in the gain adjustment of SIM 44-2: 1. Disconnection of the harness between the PCU PWB and the image density sensor. 2. Image density sensor dirt/trouble.
			Check & Remedy	1. Check connection of the harness between the PCU PWB and the image density sensor. 2. Clean/replace the image density sensor.
		Case 2	Cause	When SIM 44-2 gain adjustment is completed: Insufficient cleaning of the transfer belt, calibration plate solenoid operation trouble
			Check & Remedy	Check the drum surface and the belt surface.

Main code	Sub code	Title	**Half-tone process control 2nd patch error (Yellow)**	
F2	**87**	Display	Lamp/Message	
		Phenomenon	Detail	2nd step of execution of half-tone process control. When connecting the approximation formula (the relationship of sensor output ratios for the print gradation values) in the low-density section and that in the high-density section obtained from the patch print result, DUTY1 for 20% of output ratio in the low-density section is greater than DUTY2 for 25% of output ratio in the high-density section. <The trouble is saved in the trouble history, but F2 trouble is not displayed. The operation is made with the previous correction value.>
			Section	—
		Common	Check	Use SIM 44-2 to adjust the process control sensor gain.
		Case 1	Cause	When "Error" occurs in the gain adjustment of SIM 44-2: 1. Disconnection of the harness between the PCU PWB and the image density sensor. 2. Image density sensor dirt/trouble.
			Check & Remedy	1. Check connection of the harness between the PCU PWB and the image density sensor. 2. Clean/replace the image density sensor.
		Case 2	Cause	When SIM 44-2 gain adjustment is completed: Insufficient cleaning of the transfer belt, calibration plate solenoid operation trouble
			Check & Remedy	Check the drum surface and the belt surface.

Main code	Sub code	Title	**Half-tone process limit error**	
F2	**90**	Display	Lamp/Message	
		Phenomenon	Detail	The difference between the correction value after execution of half-tone process control and the previous correction value exceeds the specified max. value of each color. <The error is recorded in the trouble history, but F2 trouble is not indicated on the display and the previous correction value is remained.>
			Section	—
		Common	Check	Use SIM 44-2 to adjust the process control sensor gain.
		Case 1	Cause	When "Error" occurs in the gain adjustment of SIM 44-2: 1. Disconnection of the harness between the PCU PWB and the image density sensor. 2. Image density sensor dirt/trouble.
			Check & Remedy	1. Check connection of the harness between the PCU PWB and the image density sensor. 2. Clean/replace the image density sensor.
		Case 2	Cause	When SIM 44-2 gain adjustment is completed: Insufficient cleaning of the transfer belt, calibration plate solenoid operation trouble
			Check & Remedy	Check the drum surface and the belt surface.

Main code	Sub code	Title	**Cassette 1 lift up trouble**	
F3	**12**	Display	Lamp/Message	
		Phenomenon	Detail	LUD1 does not turn on within the specified time.
			Section	—
		Case 1	Cause	LUD1 sensor trouble, disconnection of harness among the PCU PWB, the lift-up unit, and the paper feed unit.
			Check & Remedy	Check LUD1, its harness, and the connector.
		Case 2	Cause	Cassette 1 lift-up motor trouble
			Check & Remedy	Check the lift-up unit.

Main code	Sub code	Title	**ICU-FAX communication trouble (ICU detection)**	
F6	**00**	Display	Lamp/Message	
		Phenomenon	Detail	Communication establishment error, framing, parity, protocol error
			Section	FAX
		Case 1	Cause	Slave unit PWB connector connection trouble. Slave unit PWB-ICU PWB harness trouble
			Check & Remedy	Check connection between the slave unit PWB and the ICU PWB, and check the harness.
		Case 2	Cause	Broken pin of the mother board connector of the slave unit PWB
			Check & Remedy	Check the connector of the slave unit PWB.
		Case 3	Cause	Slave unit ROM trouble/ No ROM/ Improper insertion of ROM/ ROM pin breakage
			Check & Remedy	Check grounding of the main unit. Check the ROM of the slave unit PWB.

Main code	Sub code	Title	**FAX expansion flash memory abnormality (ICU detection)**	
F6	**01**	Display	Lamp/Message	
		Phenomenon	Detail	An expansion flash memory with SRAM backup data in it is installed.
			Section	FAX
		Case 1	Cause	SRAM backup data are detected in the expansion flash memory. The simulation function (SIM 66-19) is provided to save SRAM backup data into an expansion flash memory. This trouble occurs when an expansion flash memory to which SRAM backup data are saved with the above function is installed.
			Check & Remedy	Use SIM 66-20 to restore the backup data to the SRAM, and use SIM 66-10 to clear the expansion flash memory. If the data are unne3cessary, simply clear the expansion memory with SIM 66-10.

Main code	Sub code	Title	**FAX MODEM operation abnormality**	
F6	04	Display	Lamp/Message	
		Phenomenon	Detail	FAX PWB MODEM chip operation trouble
			Section	FAX
		Case 1	Cause	Normal operation is made with the FAX PWB SW101 on the BOOT side. FAX PWB MODEM chip operation trouble
			Check & Remedy	Set the FAX PWB SW101 to the other side than the BOOT side, and supply power again. Replace the FAX PWB.

Main code	Sub code	Title	**FAX write protect release**	
F6	20	Display	Lamp/Message	
		Phenomenon	Detail	The write protect JP of the ICU PWB is released.
			Section	FAX
		Case 1	Cause	The FAX write protect pin is set to Write Enable.
			Check & Remedy	Check the write protect pin of the ICU PWB.
		Case 2	Cause	ICU PWB trouble
			Check & Remedy	Replace the ICU PWB.
		Case 3	Cause	FAX PWB trouble
			Check & Remedy	Replace the FAX PWB.

Main code	Sub code	Title	**Improper combination of the TEL/LIU PWB and the FAX soft switch.**	
F6	21	Display	Lamp/Message	
		Phenomenon	Detail	Improper combination of the TEL/LIU PWB and the FAX PWB information (soft switch)
			Section	FAX
		Case 1	Cause	The destination of the installed TEL/LIU PWB differs.
			Check & Remedy	Check the destination of the TEL/LIU PWB.
		Case 2	Cause	The FAX PWB information (soft switch) differs.
			Check & Remedy	Check the FAX PWB information (soft switch).
		Case 3	Cause	TEL/LIU PWB abnormality
			Check & Remedy	Replace the TEL/LIU PWB.

Main code	Sub code	Title	**The FAX-BOX PWB is not one for the AR-C170M. (FAX detection)**	
F6	97	Display	Lamp/Message	
		Phenomenon	Detail	The Modem controller of the FAX-BOX is not one for the AR-C170M.
			Section	FAX
		Case 1	Cause	The FAX-BOX Modem controller PWB information (hard detection) is not for the AR-C170M. (A Modem controller PWB for the AR-FDX5/FX6 or the AR-FX8 is used.)
			Check & Remedy	1. Check the FAX-BOX MODEM controller. 2. Replace the MODEM controller PWB with one for the AR-C170M.

Main code	Sub code	Title	**Improper combination of the FAX-BOX destination data and the main unit destination data**	
F6	98	Display	Lamp/Message	
		Phenomenon	Detail	Improper combination of the FAX-BOX destination data and the main unit destination data
			Section	FAX
		Case 1	Cause	Improper combination of the destination written in the EEPROM on the FAX-BOX PWB and the main unit destination data (set with SIM 26-6).
			Check & Remedy	1. Check the destination of the FAX-BOX. 2. Check the destination of the main unit with SIM 26-6. 3. Use a proper combination of the main unit and the FAX-BOX.

Main code	Sub code	Title	**FAX board EEPROM read/write error**	
F7	01	Display	Lamp/Message	
		Phenomenon	Detail	FAX board EEPROM read/write error
			Section	FAX
		Common	Check	Check with SIM 66-3 (memory check).
		Case 1	Cause	EEPROM trouble, FAX PWB EEPROM access circuit trouble
			Check & Remedy	When NG in SIM 66-3 EEPROM. 1. Replace the EEPROM. 2. Use SIM 66-1 to enter an adjustment value of the soft switch. 3. After entering an adjustment value, use SIM 66-4/5 (signal send level) and SIM 66-14/15/16 (dial test) to make adjustments.

Main code	Sub code	Title	**ICU-PRT communication trouble (ICU detection)**	
F9	**00**	Display	Lamp/Message	
		Phenomenon	Detail	Communication establishment error, framing, parity, protocol error
			Section	ICU/PRT PWB
		Case 1	Cause	Defective connection of the ICU/PRT PWB communication connector, defective harness between the ICU PWB and the PRT PWB
			Check & Remedy	Check connection and the harness between the ICU PWB and the MFP PWB. Check the machine earth.
		Case 2	Cause	Defective ICU PWB/PRT PWB
			Check & Remedy	Replace the ICU or the PRT PWB.

Main code	Sub code	Title	**PRT DRAM trouble**	
F9	**01**	Display	Lamp/Message	
		Phenomenon	Detail	DRAM in the PRT PWB cannot be accessed.
			Section	PRT PWB
		Case 1	Cause	Defective installation of the DRAM
			Check & Remedy	Check connection of the DRAM.
		Case 2	Cause	Defective DRAM
			Check & Remedy	Replace the DRAM.

Main code	Sub code	Title	**NIC port check error**	
F9	**03**	Display	Lamp/Message	
		Phenomenon	Detail	NIC port check error
			Section	—
		Case 1	Cause	Defective connection of the NIC connector.
			Check & Remedy	Check the NIC connector again.
		Case 2	Cause	Defective NIC PWB
			Check & Remedy	Replace the NIC.
		Case 3	Cause	Defective PRT PWB
			Check & Remedy	Replace the PRT PWB.

Main code	Sub code	Title	**HDD trouble (PRT controller detection)**	
F9	**20**	Display	Lamp/Message	
		Phenomenon	Detail	The HDD (option) does not operate normally in the machine with the HDD.
			Section	HDD
		Case 1	Cause	Defective connection of the HDD connector.
			Check & Remedy	Check the HDD connector again.
		Case 2	Cause	Defective HDD
			Check & Remedy	Replace the HDD.
		Case 3	Cause	Defective PRT PWB
			Check & Remedy	Replace the PRT PWB.

Main code	Sub code	Title	**Thermistor open (HL1)**	
H2	**00**	Display	Lamp/Message	
		Phenomenon	Detail	Thermistor open
			Section	Fusing
		Case 1	Cause	Disconnection of the fusing section connector
			Check & Remedy	Check the connector and the harness between the thermistor and the control PWB.
		Case 2	Cause	The fusing unit is not installed.
			Check & Remedy	Install the fusing unit.
		Case 3	Cause	Thermistor trouble, control PWB trouble, AC power supply trouble
			Check & Remedy	Replace the thermistor or the control PWB. Check the AC power supply.

Main code	Sub code	Title	**Thermistor open (HL2)**	
H2	**01**	Display	Lamp/Message	
		Phenomenon	Detail	Thermistor open
			Section	Fusing
		Case 1	Cause	Disconnection of the fusing section connector
			Check & Remedy	Check the connector and the harness between the thermistor and the control PWB.
		Case 2	Cause	The fusing unit is not installed.
			Check & Remedy	Install the fusing unit.
		Case 3	Cause	Thermistor trouble, control PWB trouble, AC power supply trouble
			Check & Remedy	Replace the thermistor or the control PWB. Check the AC power supply.

Main code	Sub code	Title	**Fusing section high temperature trouble (THS1)**	
H3	**00**	Display	Lamp/Message	
		Phenomenon	Detail	The fusing temperature exceeds 230°C.
			Section	Fusing
		Common	Check	Use SIM 5-2 to check the heater lamp flashing operation.
		Case 1	Cause	The heater lamp flashes properly with SIM 5-2. Thermistor trouble, disconnection of the fusing section connector
			Check & Remedy	Check the thermistor and its harness. Cancel the error with SIM 14.
		Case 2	Cause	The heater lamp keeps ON with SIM 5-2. Control PWB trouble, AC power supply trouble
			Check & Remedy	Check the AC PWB and the control PWB lamp control circuit. Cancel the error with SIM 14.

Main code	Sub code	Title	**Fusing section high temperature trouble (THS2)**	
H3	**01**	Display	Lamp/Message	
		Phenomenon	Detail	The fusing temperature exceeds 230°C.
			Section	Fusing
		Common	Check	Use SIM 5-2 to check the heater lamp flashing operation.
		Case 1	Cause	The heater lamp flashes properly with SIM 5-2. Thermistor trouble, disconnection of the fusing section connector
			Check & Remedy	Check the thermistor and its harness. Cancel the error with SIM 14.
		Case 2	Cause	The heater lamp keeps ON with SIM 5-2. AC power supply trouble, control PWB trouble
			Check & Remedy	Check the AC PWB and the control PWB lamp control circuit. Cancel the error with SIM 14.

Main code	Sub code	Title	**Fusing section low temperature trouble (HL1)**	
H4	**00**	Display	Lamp/Message	
		Phenomenon	Detail	The fusing temperature is not reached within the specified time after turning on the power relay.
			Section	Fusing
		Common	Check	Use SIM 5-2 to check the heater lamp flashing operation.
		Case 1	Cause	The heater lamp flashes properly with SIM 5-2. Thermistor trouble, PCU PWB (thermistor input circuit) trouble
			Check & Remedy	Check the thermistor and its harness. Check the PCU PWB thermistor input circuit. Cancel the error with SIM 14.
		Case 2	Cause	The heater lamp keeps ON with SIM 5-2. Heater lamp trouble, thermostat trouble, interlock switch trouble, AC power supply trouble, PCU PWB (lamp control circuit) trouble
			Check & Remedy	Check for disconnection of the heater lamp and the thermostat. Check the interlock switch. Check the AC PWB and the PUC PWB lamp control circuit. Cancel the error with SIM 14.

Main code	Sub code	Title	**Fusing section low temperature trouble (HL2)**	
H4	**01**	Display	Lamp/Message	
		Phenomenon	Detail	The fusing temperature is not reached within the specified time after turning on the power relay.
			Section	Fusing
		Common	Check	Use SIM 5-2 to check the heater lamp flashing operation.
		Case 1	Cause	The heater lamp flashes properly with SIM 5-2. Thermistor trouble, PCU PWB (thermistor input circuit) trouble
			Check & Remedy	Check the thermistor and its harness. Check the PCU PWB thermistor input circuit. Cancel the error with SIM 14.

Main code	Sub code	Title	Fusing section low temperature trouble (HL2)	
H4	01	Case 2	Cause	The heater lamp keeps ON with SIM 5-2. Heater lamp trouble, thermostat trouble, interlock switch trouble, AC power supply trouble, PCU PWB (lamp control circuit) trouble
			Check & Remedy	Check for disconnection of the heater lamp and the thermostat. Check the interlock switch. Check the AC PWB and the PUC PWB lamp control circuit. Cancel the error with SIM 14.

Main code	Sub code	Title	Five continuous detections of POD1 not-reached jam	
H5	01	Display	Lamp/Message	
		Phenomenon	Detail	POD1 not-reached jams are detected for five times continuously.
			Section	Fusing
		Case 1	Cause	A fusing jam is not canceled completely. (Jam paper remains inside the machine.)
			Check & Remedy	Check remaining jam paper (winding). Cancel the error with SIM 14.
		Case 2	Cause	POD1 sensor trouble, or harness disconnection
			Check & Remedy	Check POD1 sensor harness. Cancel the error with SIM 14.
		Case 3	Cause	Improper installation of the fusing unit
			Check & Remedy	Check installation of the fusing unit. Cancel the error with SIM 14.

Main code	Sub code	Title	Mirror feed trouble	
L1	00	Display	Lamp/Message	
		Phenomenon	Detail	Mirror feed is not completed within the specified time.
			Section	—
		Case 1	Cause	Mirror unit trouble, mirror wire breakage
			Check & Remedy	Use SIM 1-1 to check the mirror operation.

Main code	Sub code	Title	Mirror return trouble	
L3	00	Display	Lamp/Message	
		Phenomenon	Detail	Mirror return is not completed within the specified time.
			Section	—
		Case 1	Cause	Mirror unit trouble, mirror wire breakage
			Check & Remedy	Use SIM 1-1 to check the mirror operation.

Main code	Sub code	Title	Paper feed motor lock trouble	
L4	02	Display	Lamp/Message	
		Phenomenon	Detail	In warm-up, or in canceling a jam, the paper feed motor is rotated, and the lock signal is not detected within 1sec.
			Section	Paper feed
		Case 1	Cause	Paper feed motor trouble, disconnection of the harness between the PCU PWB and the paper feed motor, control circuit trouble
			Check & Remedy	Use SIM 6-1 to check the paper feed motor operation. Check the harness and the connector between the PCU PWB and the paper feed motor.

Main code	Sub code	Title	Transfer belt lift motor trouble	
L4	06	Display	Lamp/Message	
		Phenomenon	Detail	When the belt motor lifts up or down, the change in the belt home position sensor characteristics is not detected within the specified time. (When the motor lifts up, the lower limit sensor remains ON after the specified time.) (When the motor lifts down, the lower limit sensor does not turn on after the specified time.)
			Section	Paper feed
		Case 1	Cause	Belt lift motor trouble, disconnection of the harness between the PCU PWB and the belt lift motor, control circuit trouble
			Check & Remedy	Use SIM 6-1 to check the belt lift motor operation. Check the harness and the connector between the PCU PWB and the belt lift motor.

Main code	Sub code	Title	**Transfer belt motor trouble**	
L4	**07**	Display	Lamp/Message	
		Phenomenon	Detail	1. Before driving the drum, the calibration plate is opened with the process control BK sensor, and light is emitted with the gain value of 0 and with the light emitting quantity fixed to 120. The average of ten light quantities repeats to be 5 or less for 3 times continuously. 2. Immediately after driving the drum, the calibration plate is opened with the process control BK sensor, and one whole turn of the belt surface is scanned with the gain value of 0 and with the light emitting quantity at the optimum value (120 – 50). The difference between the max. value and the min. value of the scanned data is 5 or less.
			Section	Paper feed
		Case 1	Cause	Transfer belt motor connector disconnection, defective connection of the harness between the PCU PWB and the transfer belt motor
			Check & Remedy	Check the transfer belt motor operation with SIM25-1. Check the harness and the connector between the PCU PWB and the transfer belt motor.
		Case 2	Cause	Process control sensor connector disconnection, process control BK sensor defect
			Check & Remedy	Check the process control sensor operation with SIM44-2. Check the harness and the connector between the PCU PWB and the transfer belt motor.
		Case 3	Cause	Defective control circuit
			Check & Remedy	Check the control circuit.

Main code	Sub code	Title	**Shift motor trouble**	
L4	**11**	Display	Lamp/Message	
		Phenomenon	Detail	When initializing the shift motor, the change in the shift motor home position sensor characteristics is not detected within the specified time.
			Section	Paper feed
		Case 1	Cause	Shift motor trouble, disconnection of the harness between the PCU PWB and the shift motor, control circuit trouble
			Check & Remedy	Use SIM 6-1 to check the shift motor operation. Use SIM 30-1 to check the shift motor home position sensor. Check the harness and the connector between the PCU PWB and the shift motor.

Main code	Sub code	Title	**Full wave signal not provided**	
L8	**01**	Display	Lamp/Message	
		Phenomenon	Detail	The full wave signal is not provided.
			Section	—
		Case 1	Cause	PCU PWB trouble
			Check & Remedy	Replace the PCU PWB.
		Case 2	Cause	Power supply unit trouble
			Check & Remedy	Replace the power supply unit.
		Case 3	Cause	Harness trouble
			Check & Remedy	Check connection of the harness and the connector.

Main code	Sub code	Title	**Full wave signal width abnormality**	
L8	**02**	Display	Lamp/Message	
		Phenomenon	Detail	An abnormality of the full wave signal frequency is detected. (The detected frequency is 65kHz or above, or 45kHz or below.)
			Section	—
		Case 1	Cause	PCU PWB trouble
			Check & Remedy	Replace the PCU PWB.
		Case 2	Cause	Power supply unit trouble
			Check & Remedy	Replace the power supply unit.
		Case 3	Cause	Harness trouble
			Check & Remedy	Check connection of the harness and the connector.

Main code	Sub code	Title	Main power switch abnormality detection	
L8	04	Display	Lamp/Message	
		Phenomenon	Detail	Though the PCU program is operating (the power is supplied), the main power switch OFF is detected.
			Section	—
		Case 1	Cause	Main power switch trouble
			Check & Remedy	Replace the main power switch.
		Case 2	Cause	Power supply unit trouble
			Check & Remedy	Replace the power supply unit.
		Case 3	Cause	Harness trouble
			Check & Remedy	Check connection of the harness and the connector.

Main code	Sub code	Title	RIC copy inhibit signal reception	
PF	00	Display	Lamp/Message	
		Phenomenon	Detail	The copy inhibit signal from RIC (host) is received.
			Section	—
		Case 1	Cause	Depends on a judgment by the host.
			Check & Remedy	Make notification to the host. Use SIM 27-1 to ignore.

Main code	Sub code	Title	ICU-OPE communication trouble (ICU/OPE detection)	
U0	00	Display	Lamp/Message	
		Phenomenon	Detail	Communication establishment error, framing/parity/protocol error. ROM version phase shift.
			Section	—
		Case 1	Cause	Disconnection of the operation panel communication connector of the ICU/MFP PWB, harness trouble between the ICU PWB and the MFP PWB.
			Check & Remedy	Check the connector and the harness between the ICU PWB and the MFP PWB.
		Case 2	Cause	ICU/MFP PWB trouble
			Check & Remedy	Check grounding of the machine. Replace the ICU PWB or the MFP PWB.
		Case 3	Cause	When the OPE-ROM without security functions is installed for the ICU-ROM with security kit functions.
			Check & Remedy	Check the ROM version, and replace it if necessary.

Main code	Sub code	Title	FAX battery abnormality	
U1	01	Display	Lamp/Message	
		Phenomenon	Detail	FAX backup SRAM battery voltage fall
			Section	FAX
		Case 1	Cause	Battery life
			Check & Remedy	Check to insure that the battery voltage is about 2.5V or above.
		Case 2	Cause	Battery circuit abnormality.
			Check & Remedy	Check the battery circuit.

Main code	Sub code	Title	RTC read trouble	
U1	02	Display	Lamp/Message	
		Phenomenon	Detail	Abnormal value is read from the RTC on the ICU PWB.
			Section	—
		Case 1	Cause	RTC circuit abnormality
			Check & Remedy	Set the time again with the key operation, and check that time advances properly. Check the RTC circuit.
		Case 2	Cause	Battery voltage fall. Battery circuit abnormality.
			Check & Remedy	Check to insure that the battery voltage is about 2.5V or above. Check the battery circuit.

Main code	Sub code	Title	EEPROM read/write error (ICU detection)	
U2	00	Display	Lamp/Message	
		Phenomenon	Detail	EEPROM version error EEPROM write error
			Section	—
		Case 1	Cause	EEPROM trouble. EEPROM is not initialized.
			Check & Remedy	1. Check that the EEPROM is properly set. 2. Use SIM 16 to cancel the error.
		Case 2	Cause	ICU PWB EEPROM access circuit trouble
			Check & Remedy	1. To prevent against deletion of the counter data and the adjustment data, record them with the simulation. (When a printer option is installed, use SIM 22-1 to record the counter data and the adjustment data.) 2. Replace the ICU PWB. 3. Use SIM 16 to cancel the error.

Main code	Sub code	Title	**EEPROM check sum error (ICU detection)**	
U2	**11**	Display	Lamp/Message	
		Phenomenon	Detail	EEPROM (ICU) check sum error
			Section	—
		Case 1	Cause	EEPROM trouble
			Check & Remedy	1. Check that the EEPROM is properly set. 2. Use SIM 16 to cancel the error.
		Case 2	Cause	Control circuit freeze by noises. ICU PWB EEPROM access circuit trouble.
			Check & Remedy	1. To prevent against deletion of the counter data and the adjustment data, record them with the simulation. (When a printer option is installed, use SIM 22-1 to record the counter data and the adjustment data.) 2. Replace the ICU PWB. 3. Use SIM 16 to cancel the error.

Main code	Sub code	Title	**FAX backup SRAM memory check sum error**	
U2	**22**	Display	Lamp/Message	
		Phenomenon	Detail	FAX backup SRAM memory check sum error
			Section	FAX
		Case 1	Cause	SRAM trouble
			Check & Remedy	Initialize the one-touch dial and the FAX soft switch registered in the SRAM. Cancel the trouble with SIM 16.
		Case 2	Cause	Control circuit freeze by noises. Access circuit trouble.
			Check & Remedy	Replace the FAX PWB. Use SIM 16 to cancel the error.

Main code	Sub code	Title	**Production No. data discrepancy**	
U2	**30**	Display	Lamp/Message	
		Phenomenon	Detail	The production No. recorded in the PCU differs from that recorded in the ICU.
			Section	—
		Case 1	Cause	EEPROM is not exchanged when replacing the PCU/ICU PWB.
			Check & Remedy	Check that the EEPROM is properly installed. When replacement, check that the EEPROM before replacement is inserted to the board after replacement.

Main code	Sub code	Title	**EEPROM read/write error (SCN)**	
U2	**80**	Display	Lamp/Message	
		Phenomenon	Detail	EEPROM version error EEPROM write error
			Section	—
		Case 1	Cause	EEPROM trouble, Insertion of EEPROM which is not initialized or defective.
			Check & Remedy	1. Check that the EEPROM is properly inserted. 2. Use SIM 16 to cancel the error.
		Case 2	Cause	SCN PWB EEPROM access circuit trouble
			Check & Remedy	1. To prevent against deletion of the counter data and the adjustment data, record them with the simulation. (When a printer option is installed, use SIM 22-1 to record the counter data and the adjustment data.) 2. Replace the SCN PWB. 3. Use SIM 16 to cancel the error.

Main code	Sub code	Title	**Adjustment value check sum error (SCN)**	
U2	**81**	Display	Lamp/Message	
		Phenomenon	Detail	EEPROM (SCN) check sum error
			Section	—
		Case 1	Cause	EEPROM trouble
			Check & Remedy	1. Check that the EEPROM is properly inserted. 2. Use SIM 16 to cancel the error.
		Case 2	Cause	SCN PWB EEPROM access circuit trouble
			Check & Remedy	1. To prevent against deletion of the counter data and the adjustment data, record them with the simulation. (When a printer option is installed, use SIM 22-1 to record the counter data and the adjustment data.) 2. Replace the SCN PWB. 3. Use SIM 16 to cancel the error.

Main code	Sub code	Title	**EEPROM read/write error (PCU)**	
U2	**90**	Display	Lamp/Message	
		Phenomenon	Detail	EEPROM version error EEPROM write error
			Section	—
		Case 1	Cause	EEPROM trouble, Insertion of EEPROM which is not initialized or defective.
			Check & Remedy	1. Check that the EEPROM is properly inserted. 2. Use SIM 16 to cancel the error.
		Case 2	Cause	PCU PWB EEPROM access circuit trouble
			Check & Remedy	1. To prevent against deletion of the counter data and the adjustment data, record them with the simulation. (When a printer option is installed, use SIM 22-1 to record the counter data and the adjustment data.) 2. Replace the PCU PWB. 3. Use SIM 16 to cancel the error.

Main code	Sub code	Title	**Adjustment value check sum error (PCU)**	
U2	**91**	Display	Lamp/Message	
		Phenomenon	Detail	EEPROM (PCU) check sum error
			Section	—
		Case 1	Cause	EEPROM trouble
			Check & Remedy	1. Check that the EEPROM is properly inserted. 2. Use SIM 16 to cancel the error.
		Case 2	Cause	Control circuit freeze caused by noises, PCU PWB EEPROM access circuit trouble
			Check & Remedy	1. To prevent against deletion of the counter data and the adjustment data, record them with the simulation. (When a printer option is installed, use SIM 22-1 to record the counter data and the adjustment data.) 2. Replace the PCU PWB. 3. Use SIM 16 to cancel the error.

Main code	Sub code	Title	**ADU alignment plate operation abnormality**	
U4	**02**	Display	Lamp/Message	
		Phenomenon	Detail	The alignment plate does not move from the home position within 1sec when it must move. Return to the home position is not detected for 5sec or more.
			Section	ADU
		Case 1	Cause	Home position sensor trouble
			Check & Remedy	Use SIM 9-2 to detect the home position sensor.
		Case 2	Cause	Alignment plate shift motor trouble
			Check & Remedy	Use SIM 9-4 to check the alignment plate operation.
		Case 3	Cause	Disconnection of the harness between the ADU control PWB and the motor sensor.
			Check & Remedy	Check connection of the harness between the ADU control PWB and the motor sensor.
		Case 4	Cause	Alignment plate operation belt, gear breakage or improper adjustment
			Check & Remedy	Remove the ADU, and check for breakage of the gear and the belt.

Main code	Sub code	Title	**Desk communication trouble**	
U6	**00**	Display	Lamp/Message	
		Phenomenon	Detail	Desk communication error, communication test error when turning on the power or after canceling the exclusive simulation.
			Section	Desk
		Case 1	Cause	Improper connection or disconnection of the connector and the harness.
			Check & Remedy	Check the connector and the harness in the communication line. Turn OFF/ON the power to cancel the error.
		Case 2	Cause	Desk control PWB trouble, control PWB (PCU) trouble, malfunction caused by noises
			Check & Remedy	Turn OFF/ON the power to cancel the error.

Main code	Sub code	Title	**Desk tray 1 lift motor trouble**	
U6	**01**	Display	Lamp/Message	
		Phenomenon	Detail	DLUD1 does not turn on within the specified time.
			Section	Desk
		Case 1	Cause	DLUD1 sensor trouble, paper feed unit harness disconnection
			Check & Remedy	Check DLUD1 and the harness and the connector.
		Case 2	Cause	Cassette 1 lift-up motor trouble, desk PWB, lift-up unit trouble
			Check & Remedy	Check the lift-up unit.

Main code	Sub code	Title	**Desk tray 2 lift motor trouble**	
U6	**02**	Display	Lamp/Message	
		Phenomenon	Detail	DLUD2 does not turn on within the specified time.
			Section	Desk
		Case 1	Cause	DLUD2 sensor trouble, paper feed unit harness disconnection
			Check & Remedy	Check DLUD2 and the harness and the connector.
		Case 2	Cause	Desk cassette 2 lift-up motor trouble, desk PWB, lift-up unit trouble
			Check & Remedy	Check the lift-up unit.

Main code	Sub code	Title	**Desk tray 3 lift motor trouble**	
U6	**03**	Display	Lamp/Message	
		Phenomenon	Detail	DLUD3 does not turn on within the specified time.
			Section	Desk
		Case 1	Cause	DLUD3 sensor trouble, paper feed unit harness disconnection
			Check & Remedy	Check DLUD3 and the harness and the connector.
		Case 2	Cause	Desk cassette 3 lift-up motor trouble, desk PWB, lift-up unit trouble
			Check & Remedy	Check the lift-up unit.

Main code	Sub code	Title	**LCC lift motor trouble**	
U6	**09**	Display	Lamp/Message	
		Phenomenon	Detail	• The encoder input value does not change in 0.13sec (first time)/0.5sec (second time or later) after rotation of the motor. • The motor is rotated for 18sec or more. • The encoder changes after the specified time from termination of the motor. (2sec and 10 counts or more)
			Section	LCC
		Common	Check	Use SIM 4-2 and 4-3 to check the sensor operation and the lift motor operation. Cancel the trouble with SIM 15.
		Case 1	Cause	Sensor trouble
			Check & Remedy	Replace the sensor.
		Case 2	Cause	LCC control PWB trouble
			Check & Remedy	Replace the LCC control PWB.
		Case 3	Cause	Gear breakage
			Check & Remedy	Replace the gear.
		Case 4	Cause	Lift motor trouble
			Check & Remedy	Replace the lift motor.

Main code	Sub code	Title	**Desk transport motor trouble**	
U6	**10**	Display	Lamp/Message	
		Phenomenon	Detail	Desk transport motor operation trouble
			Section	—
		Case 1	Cause	Motor lock, motor RPM abnormality, Over current to the motor, saddle finisher control PWB trouble
			Check & Remedy	Use SIM 4-3 to check the desk transport motor operation.

Main code	Sub code	Title	**LCC communication trouble**	
U6	**20**	Display	Lamp/Message	
		Phenomenon	Detail	Communication error with the LCC. Communication line test error after turning on the power or canceling an exclusive simulation. Discrepancy of the model code between the LCC and the machine.
			Section	—
			Common	Turn OFF/ON the power to cancel the error.

Main code	Sub code	Title	LCC communication trouble	
U6	20	Case 1	Cause	Improper connection or disconnection of the connector and the harness.
			Check & Remedy	Check the connector and the harness in the communication line.
		Case 2	Cause	LCC control PWB trouble
			Check & Remedy	Replace the LCC control PWB.
		Case 3	Cause	Control PWB (PCU) trouble
			Check & Remedy	Replace the control PWB (PCU).
		Case 4	Cause	Malfunction caused by noises
			Check & Remedy	Turn OFF/ON the power to cancel the error.

Main code	Sub code	Title	LCC transport motor trouble	
U6	21	Display	Lamp/Message	
		Phenomenon	Detail	• The encoder input value does not change in 0.06sec after turning on the motor. • The encoder input changes after the specified time from turning off the motor. (100 or more counts are made in 0.1sec after 5sec.)
			Section	—
		Case 1	Cause	Motor lock, motor RPM abnormality. Over current to the motor, saddle finisher control PWB trouble
			Check & Remedy	Use SIM 4-3 to check the transport motor operation.

Main code	Sub code	Title	LCC 24V power abnormality	
U6	22	Display	Lamp/Message	
		Phenomenon	Detail	DC 24V is not supplied to the LCC.
			Section	—
		Case 1	Cause	Improper connection or disconnection of the connector and the harness.
			Check & Remedy	Check the connector and the harness in the power line. Turn OFF/ON the power to cancel the error.
		Case 2	Cause	LCC control PWB trouble
			Check & Remedy	Turn OFF/ON the power to cancel the error.
		Case 3	Cause	Power supply unit trouble
			Check & Remedy	Turn OFF/ON the power to cancel the error.

Main code	Sub code	Title	Desk incompatibility trouble	
U6	50	Display	Lamp/Message	
		Phenomenon	Detail	Connection of a desk which is not compatible with the AR-C170M is detected.
			Section	Desk
		Case 1	Cause	Connection of a desk (AR-D17/AR-D18/AR-D19) which is not compatible with the AR-C170M is detected.
			Check & Remedy	Connect the AR-D18N/AR-D19N.

Main code	Sub code	Title	LCC incompatibility trouble	
U6	51	Display	Lamp/Message	
		Phenomenon	Detail	Connection of LCC which is not compatible with the AR-C170M is detected.
			Section	LCC
		Case 1	Cause	Connection of the AR-LC5 which is not compatible with the AR-C170M is detected.
			Check & Remedy	Connect the AR-LC8.

Main code	Sub code	Title	RIC communication trouble	
U7	00	Display	Lamp/Message	
		Phenomenon	Detail	RIC communication error, communication test error when turning on the power or after canceling the exclusive simulation.
			Section	RIC
		Case 1	Cause	Improper connection or disconnection of the connector and the harness. RIC control PWB trouble, control PWB (PCU) trouble, malfunction caused by noises.
			Check & Remedy	Turn OFF/ON the power to cancel the error. Check the connector and the harness in the communication line.

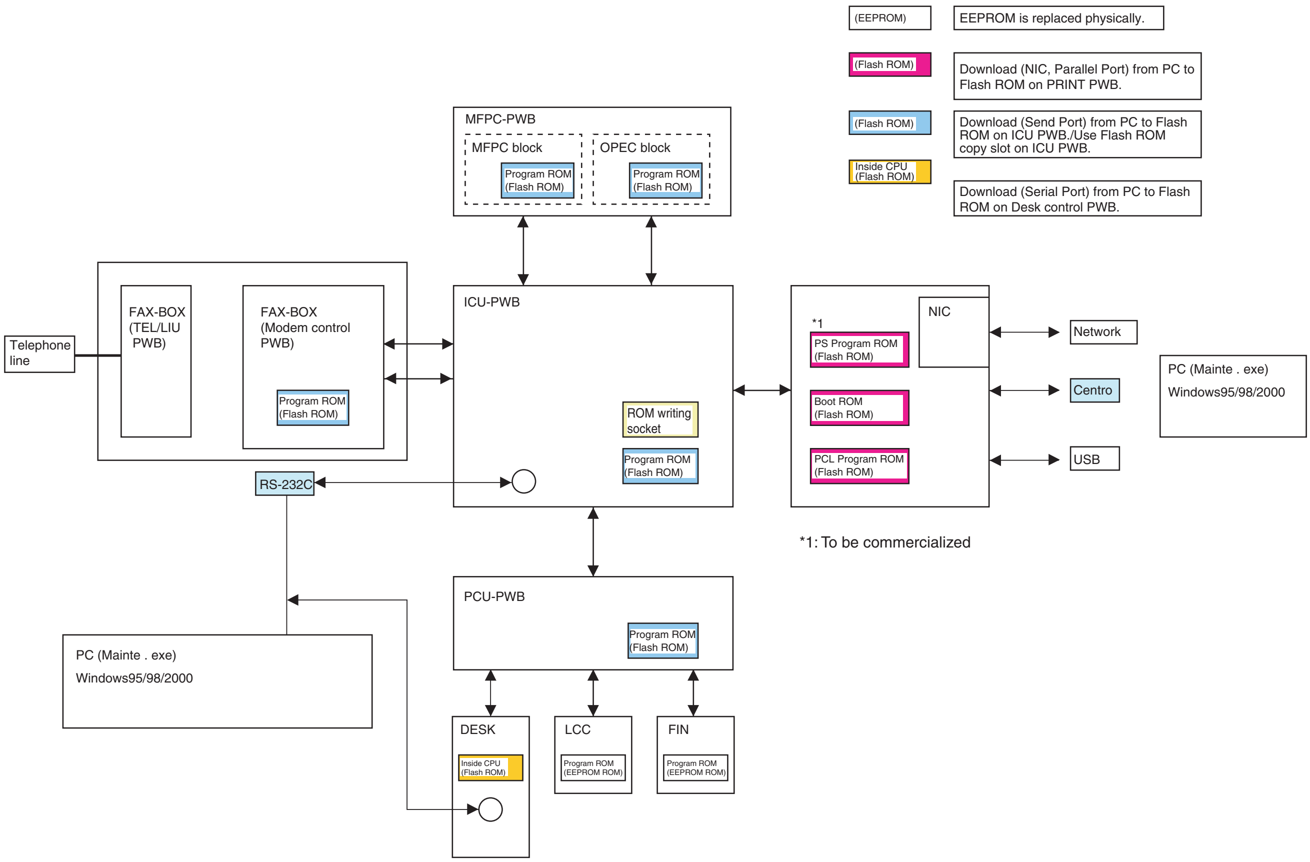
Main code	Sub code	Title	CPT-ASIC trouble (MFP PWB trouble)	
UC	02	Display	Lamp/Message	
		Phenomenon	Detail	Access abnormality to CPT-ASIC (ASIC does not operate normally.)
			Section	MFP PWB
		Case 1	Cause	CPT-ASIC abnormality MFP PWB abnormality
			Check & Remedy	Turn OFF/ON repeatedly. If the trouble is not canceled, replace the MFP PWB.

[12] ROM VERSION UP

1. Outline

A. Target ROM for version up

The following ROM's are used in the machine, and their versions are revised.


(EEPROM)
EEPROM is replaced physically.
(Flash ROM)
Download (NIC, Parallel Port) from PC to Flash ROM on PRINT PWB.
(Flash ROM)
Download (Send Port) from PC to Flash ROM on ICU PWB./Use Flash ROM copy slot on ICU PWB.
Inside CPU (Flash ROM)
Download (Serial Port) from PC to Flash ROM on Desk control PWB.
MFPC-PWB
MFPC block
Program ROM (Flash ROM)
OPEC block
Program ROM (Flash ROM)
Telephone line
FAX-BOX (TEL/LIU PWB)
FAX-BOX (Modem control PWB)
Program ROM (Flash ROM)
ICU-PWB
ROM writing socket
Program ROM (Flash ROM)
RS-232C
NIC
*1
PS Program ROM (Flash ROM)
Boot ROM (Flash ROM)
PCL Program ROM (Flash ROM)
Network
Centro
USB
PC (Mainte . exe)
Windows95/98/2000
*1: To be commercialized
PCU-PWB
Program ROM (Flash ROM)
PC (Mainte . exe)
Windows95/98/2000
DESK
Inside CPU (Flash ROM)
LCC
Program ROM (EEPROM ROM)
FIN
Program ROM (EEPROM ROM)

	ROM kind				File name/Content	
Section	Name	Type	Capacity	Replacement	Program (with Copy ROM to ROM program)	Program (without Copy ROM to ROM program)
PCU PWB	PCU ROM	Flash ROM	8Mbit	Replaceable	WPcuXXX_src.pgm	WPcuXXX_d.pgm
ICU PWB	ICU ROM	Flash ROM	32Mbit x 2	Replaceable	WIcuXXX_src.pgm	WIcuXXX_d.pgm
MFP PWB	Operation control ROM	Flash ROM	16Mbit x 2	Replaceable	WOpeXXX_src.pgm	WOpeXXX_d.pgm
	Scanner control ROM	Flash ROM	16Mbit x 2	Replaceable	WScnXXX_src.pgm	WScnXXX_d.pgm
DESK CONTROL PWB	Desk control ROM	Flash ROM included in CPU		Fixed	WDskXXX_src.pgm	WDskXXX_d.pgm
LCC CONTROL PWB	LCC control ROM	Flash ROM included in CPU		Fixed		
FAX CONTROL PWB	FAX control ROM	Flash ROM	8Mbit x 2	Replaceable		
FINISHER CONTROL PWB	Finisher control ROM	EPROM		Replaceable		

B. When version up of ROM is required

In the following cases, version up of ROM is required.

1) In order to improve the performance.
2) When installing a new spare part ROM to the machine for repair.
3) When installing a new repair spare parts PWB unit which has a ROM in it to the machine.
4) When the program in a ROM has some troubles and must be corrected.

C. Flash ROM version up method

(In the case of PCU ROM, ICU ROM, Operation control ROM, Scanner control ROM, FAX control ROM)

There are following two methods of Flash Rom version up.

1) By connecting a computer with the ICU PWB, the program data of Flash ROM is written from the computer to the Flash ROM on the ICU MAIN PWB.

   This method has the following two variations.

   a) All data in the PWB programs and the Flash ROM copy (ROM-ROM) program are written: (Making of the source ROM)

      In this method, the Flash ROM on the writing side needs capacity of 32Mbit x 2

      (In order to make a source ROM, the capacity of the Flash ROM must be as shown above.)

   b) Only each PWB program is written.

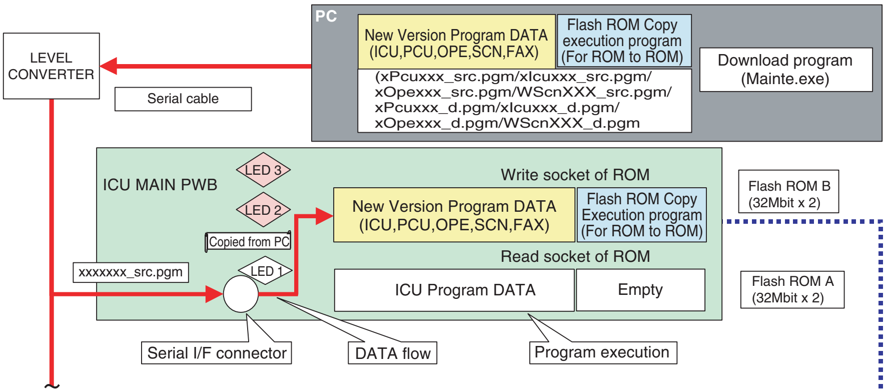
2) Two Flash ROM sockets on the ICU MAIN PWB are used to copy the program in the source ROM to another Flash ROM. (It normally takes 30 to 60 sec.)

   In this method, the Flash ROM (source ROM) made by the method of using a computer and writing the program to the Flash ROM is required.

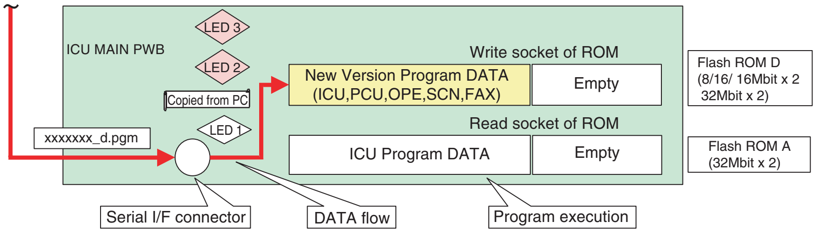
(Note)

To make version up of several Flash ROM's of several machines, it is the most effective to make a source ROM by the method of 1) -a) and copy the data to several Flash ROM's by the method of 2).

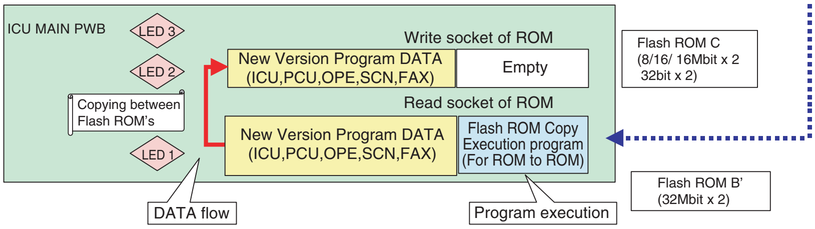
(1)-a Method of writing the program data from a PC to the ICU MAIN PWB Flash ROM (Making of source ROM)
The program for each PWB and the Flash ROM copy program are copied into the Flash ROM on the Write side socket.


PC
New Version Program DATA (ICU,PCU,OPE,SCN,FAX)
Flash ROM Copy execution program (For ROM to ROM)
(xPcuxxx_src.pgm/xIcuxxx_src.pgm/ xOpexxx_src.pgm/WScnXXX_src.pgm/ xPcuxxx_d.pgm/xIcuxxx_d.pgm/ xOpexxx_d.pgm/WScnXXX_d.pgm
Download program (Mainte.exe)
LEVEL CONVERTER
Serial cable
ICU MAIN PWB
LED 3
LED 2
Copied from PC
LED 1
xxxxxxx_src.pgm
Write socket of ROM
New Version Program DATA (ICU,PCU,OPE,SCN,FAX)
Flash ROM Copy Execution program (For ROM to ROM)
Read socket of ROM
ICU Program DATA
Empty
Flash ROM B (32Mbit x 2)
Flash ROM A (32Mbit x 2)
Serial I/F connector
DATA flow
Program execution

(1)-b Method of writing the program data from a PC to the ICU MAIN PWB Flash ROM
The program for each PWB is copied to the Flash ROM on the Write socket.


ICU MAIN PWB
LED 3
LED 2
Copied from PC
LED 1
xxxxxxx_d.pgm
Write socket of ROM
New Version Program DATA (ICU,PCU,OPE,SCN,FAX)
Empty
Read socket of ROM
ICU Program DATA
Empty
Flash ROM D (8/16/ 16Mbit x 2 32Mbit x 2)
Flash ROM A (32Mbit x 2)
Serial I/F connector
DATA flow
Program execution

(2) Method of copying with two Flash ROM sockets on the ICU MAIN PWB
The program for each PWB in the Flash ROM (source ROM) on the Read socket is copied to the Flash ROM (target ROM) on the Write socket.


ICU MAIN PWB
LED 3
LED 2
Copying between Flash ROM's
LED 1
Write socket of ROM
New Version Program DATA (ICU,PCU,OPE,SCN,FAX)
Empty
Read socket of ROM
New Version Program DATA (ICU,PCU,OPE,SCN,FAX)
Flash ROM Copy Execution program (For ROM to ROM)
Flash ROM C (8/16/ 16Mbit x 2 32bit x 2)
Flash ROM B' (32Mbit x 2)
DATA flow
Program execution

Relationship between copy (write) method and copy contents

(1)-a Method of writing the program data from a PC to the ICU MAIN PWB Flash ROM (Making of source ROM)
The program for each PWB and the Flash ROM copy program are copied into the Flash ROM on the Write side socket.

PC side			Write side Flash ROM (Flash ROM B)				Note
Content		File name	Name	Capacity	Copied content		
Program for PCU Flash ROM	Program for Flash ROM copy (ROM to ROM)	xPcuxxx_src.pgm	For PCU Flash ROM	32bit x 2	Program for PCU Flash ROM	Program for Flash ROM copy (ROM to ROM)	The ICU Flash ROM with the copy (write) program in it must be connected to the Read side Flash ROM socket. When shipping, from the factory, the copy (write) program is provided for use. By this method with two Flash ROM sockets on the ICU PWB, the Flash ROM for copying is made.
Program for ICU Flash ROM	Program for Flash ROM copy (ROM to ROM)	xIcuxxx_src.pgm	For ICU Flash ROM	32bit x 2	Program for ICU Flash ROM	Program for Flash ROM copy (ROM to ROM)	
Program for operation control Flash ROM	Program for Flash ROM copy (ROM to ROM)	xOpexxx_src.pgm	For operation control Flash ROM	32bit x 2	Program for operation control Flash ROM	Program for Flash ROM copy (ROM to ROM)	
Program for scanner control Flash ROM	Program for Flash ROM copy (ROM to ROM)	WScnXXX_src.pgm	For scanner control Flash ROM	32Mbit x 2	Program for scanner control Flash ROM	Program for Flash ROM copy (ROM to ROM)	
Program for FAX control Flash ROM	Program for Flash ROM copy (ROM to ROM)		For FAX control Flash ROM	32Mbit x 2	Program for FAX control Flash ROM	Program for Flash ROM copy (ROM to ROM)	

(1)-b Method of writing the program data from PC to the Flash ROM on the ICU PWB
The program for each PWB is copied to the Flash ROM on the Write socket.

PC side			Write side Flash ROM (Flash ROM D)				Note
Content		File name	Name	Capacity	Copied content		
Program for PCU PWB Flash ROM		xpcuxxx_d.pgm	For PCU Flash ROM	8Mbit	Program for PCU Flash ROM		The ICU MAIN PWB Flash ROM with the copy (write) program in it must be connected to the Read side Flash ROM socket. When shipping, from the factory, the copy (write) program is provided for use.
Program for ICU PWB Flash ROM		xIcuxxx_d.pgm	For ICU Flash ROM	32Mbit x 2	Program for ICU Flash ROM		
Program for operation control Flash ROM		xOpexxx_d.pgm	For operation control Flash ROM	16Mbit x 2	Program for operation control Flash ROM		
Program for scanner control Flash ROM		WScnXXX_d.pgm	For scanner control Flash ROM	16Mbit x 2	Program for scanner control Flash ROM		
Program for FAX control Flash ROM			For FAX control Flash ROM	8Mbit x 2	Program for FAX control Flash ROM		

(2) Method of copying with two Flash ROM sockets on the ICU MAIN PWB
The program for each PWB in the Flash ROM (Source ROM) on the Read side Flash ROM socket is copied to a Flash ROM on the Write side socket.

Read side Flash ROM (ROM B) (*1)			Write side Flash ROM (Flash ROM C)				Note
Capacity	Content		Name	Capacity	Copied content		
32Mbit x 2	Program for PCU Flash ROM	Program for Flash ROM Copy (ROM to ROM)	For PCU Flash ROM	8Mbit	Program for PCU Flash ROM		The Flash ROM on the Read side is the source ROM for PCU, which was made by writing the program data from PC to the Flash ROM.
32Mbit x 2	Program for ICU Flash ROM	Program for Flash ROM copy (ROM to ROM)	For ICU Flash ROM	32Mbit x 2	Program for ICU Flash ROM		The Flash ROM on the Read side is the source ROM for ICU, which was made by writing the program data from PC to the Flash ROM.
32Mbit x 2	Program for operation control Flash ROM	Program for Flash ROM copy (ROM to ROM)	For operation control Flash ROM	16Mbit x 2	Program for operation control Flash ROM		The Flash ROM on the Read side is the source ROM for operation control PWB, which was made by writing the program data from PC to the Flash ROM.
32Mbit x 2	Program for scanner control Flash ROM	Program for Flash ROM copy (ROM to ROM)	Program for scanner control Flash ROM	16Mbit x 2	Program for scanner control Flash ROM		
32Mbit x 2	Program for FAX control Flash ROM		Program for FAX control Flash ROM	8Mbit x 2	Program for FAX control Flash ROM		

*1: This Flash ROM was made by writing the program data from PC to the ICU MAIN PWB Flash ROM.

NOTE: Besides this method of Flash ROM version up, there is another method by use of a machine of the AR-350/450 series.
This method, however, allows the version up work in a shorter time.
For details, refer to Technical Report ARE-352 (ARJ-390).

(Desk control ROM)

The desk unit control program is installed in the Flash ROM in the CPU of the desk unit control PWB.

Therefore, this Flash ROM cannot be replaced physically.

The PC is connected with the desk unit control PWB, and the Flash Rom program is written from the PC to the Flash Rom in the CPU.

PC side		Write side (Flash ROM in the CPU on the Desk unit control PWB)
Content	File name	Copied content
Program for Desk control PWB Flash ROM	WDskxxx_d.pgm	Program for Desk control PWB Flash ROM

2. Precautions

A. Relationship between each ROM and version up

When making version up of ROM, check the combination with the version of ROM installed to the other PWB including options.

In some combination of ROM versions, the machine may not operate normally.

If all the ROM's are of the latest versions, there is no problem.

3. Necessary items for version up (copy) of Flash ROM

Necessary items for Flash ROM version up

(In the case of PCU ROM, ICU ROM, Operation control ROM, Scanner control ROM, FAX control ROM)

(1)-a Method of writing the program data from a PC to the Flash ROM on the ICU MAIN PWB. (Making of the source ROM)
The program for each PWB and the Flash ROM copy program are copied to a Flash ROM on the Write socket.

Necessary item	Note
Level converter	UKOG-0002QSZZ (with serial cable)/UKOG-0003QSZZ (without serial cable)
PC	Windows 95/98/2000 environment
Download program file	Software to write the program data from a PC to the Flash ROM (Mainte_xxxx.exe)
(PCU MAIN PWB Flash ROM program/Flash ROM copy (ROM to ROM) program) file	xPcuxxx_src.pgm
(ICU MAIN PWB Flash ROM program/Flash ROM copy (ROM to ROM) program) file	xIcuxxx_src.pgm
(Operation control PWB Flash ROM program/Flash ROM copy (ROM to ROM) program) file	xOpexxx_src.pgm
Program for scanner control Flash ROM/Program for Flash ROM copy (ROM to ROM)	WScnXXX_src.pgm
Program for FAX control Flash ROM/Program for Flash Rom copy (ROM to ROM)	
ICU MAIN PWB Flash ROM (including the program for MAIN ICU PWB and the Flash ROM copy (PC - ROM) program) (32Mbit x 2) (Flash ROM A)	Flash ROM which has the function of writing the program data from PC to the Flash ROM on the ICU
Writing Flash ROM (32Mbit x 2) (Flash ROM B)	Flash ROM to make a source ROM

(1)-b Method of writing the program data from a PC to the ICU MAIN PWB Flash ROM.
The program for each PWB is copied to the Flash ROM on the Write side socket.

Necessary item	Note
Level converter	UKOG-0002QSZZ (with serial cable)/UKOG-0003QSZZ (without serial cable)
PC	Windows 95/98/2000 environment
Download program file	Software for writing the program data from a PC to the Flash ROM (Mainte.exe)
PCU Flash ROM program file	xpcuxxx_d.pgm
ICU Flash ROM program file	xIcuxxx_d.pgm
Operation control PWB Flash ROM program file	xOpexxx_d.pgm
Scanner control Flash ROM program	WScnXXX_d.pgm
FAX control Flash ROM program	
Flash Rom for ICU (including the program for Main ICU PWB and the Flash ROM copy (PC - ROM) program (32Mbit x 2) (Flash ROM A)	Flash ROM (ICU PWB) having the function to write program data from PC to the Flash ROM on the ICU PWB.
Writing Flash ROM (16Mbit x 2/16Mbit/8Mbit/32Mbit x 2/8Mbit x 2)	The type (capacity) of the Flash ROM depends on which Flash ROM is made among the CPU PWB, the ICU PWB, and the operation PWB.

(2) Method of copying with two Flash ROM sockets on the ICU MAIN PWB
The program for each PWB in the Flash ROM (source ROM) on the Read side Flash ROM socket is copied to the Flash ROM on the Write side socket.

Necessary item	Note
Flash Rom including the ICU program and the Flash ROM copy (ROM to ROM) program (Flash ROM B) (32Mbit x 2)	Flash ROM made by writing the program data from PC to the Flash ROM (32Mbit x 2)
Flash Rom including the PCU program and the Flash ROM copy (ROM to ROM) program (Flash ROM B) (32Mbit x 2)	Flash ROM made by writing the program data from PC to the Flash ROM (32Mbit x 2)
Flash Rom including the program for the operation control PWB and the Flash ROM copy (ROM to ROM) program (Flash ROM B') (32Mbit x 2)	Flash ROM made by writing the program data from PC to the Flash ROM (32Mbit x 2)
Program for scanner control Flash ROM/Flash ROM copy (ROM to ROM) program	Flash ROM made by writing the program data from PC to the Flash ROM (32Mbit x 2)
Program for FAX control Flash ROM/Flash ROM copy (ROM to ROM) program	Flash ROM made by writing the program data from PC to the Flash ROM (32Mbit x 2)
Writing Flash ROM/16Mbit x 2/16Mbit/8iMbit/32Mbit x 2) (Flash ROM C)	The type (capacity) of Flash ROM is determined depending on the kind of Flash ROM (in the PCU PWB, in the ICU PWB, or in the operation control PWB).

(In the case of Desk control ROM)

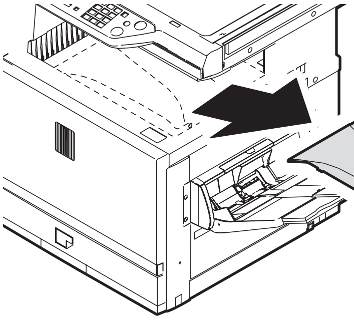
Necessary item	Note
Level converter	UKOG-0002QSZZ (with serial cable)/UKOG-0003QSZZ (without serial cable)
PC	Windows 95/98/2000 environment
Download program file	Software to write the program data from PC to the Flash ROM. (Mainte_xxxx.exe)
Desk control Flash ROM program file	WDskxxxx_d.pgm

4. Flash ROM version up procedure

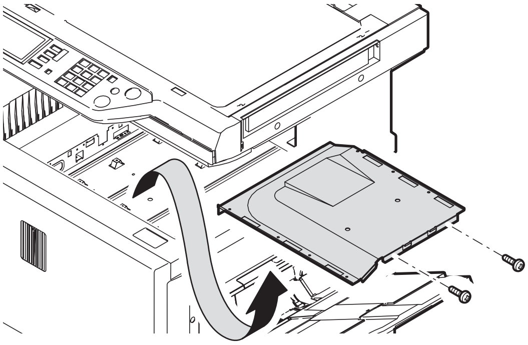
(In the case of PCU ROM, ICU ROM, Operation control ROM, Scanner control ROM, FAX control ROM)

(Preliminary procedure)

1) Remove the machine paper tray cabinet. (2 screws)

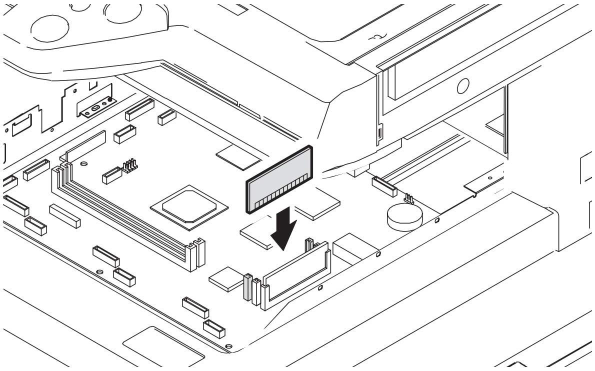


2) Remove the shield plate. (2 screws)

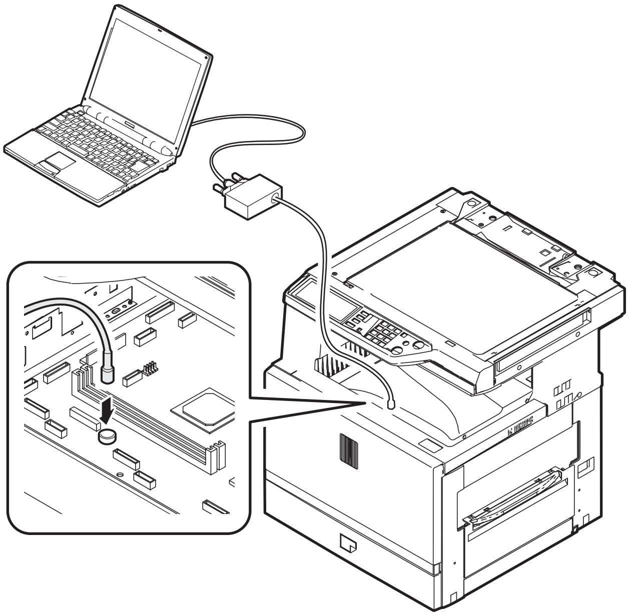


A. By using a computer and the ICU PWB, the program data of Flash ROM is written from the computer to the Flash ROM of the ICU PWB.

1) Check that the power of the machine is turned off. Install the Flash ROM which is to be upgraded (copied) to the write socket of the ICU PWB.



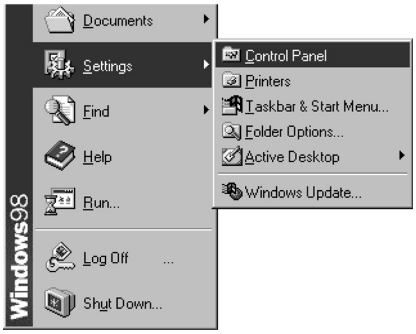
2) Connect the computer with the level converter.



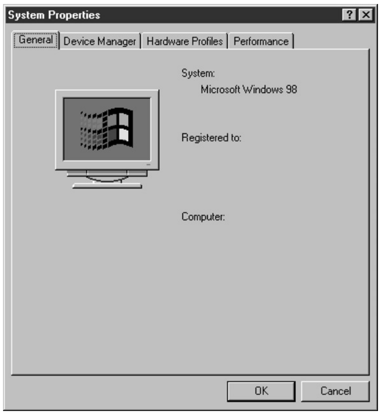
3) Connect the serial I/F connector on the ICU MAIN PWB with the level converter.
4) Turn on the computer to start Windows.
5) Turn on the machine.
6) Set the communication speed on the computer side.

In the case of Windows 95/98:

(6-1) Open the "Control panel."


Documents
Settings
Find
Help
Run...
Log Off ...
Shut Down...
Windows98
Control Panel
Printers
Taskbar & Start Menu...
Folder Options...
Active Desktop
Windows Update...

(6-2) Open the "System."

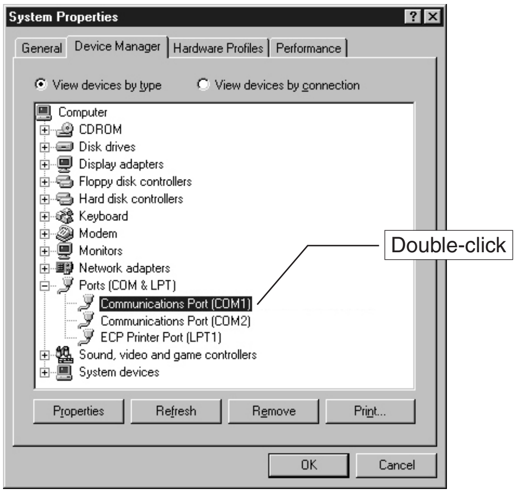

System Properties
General
Device Manager
Hardware Profiles
Performance
OK
Cancel

System:
Microsoft Windows 98

Registered to:

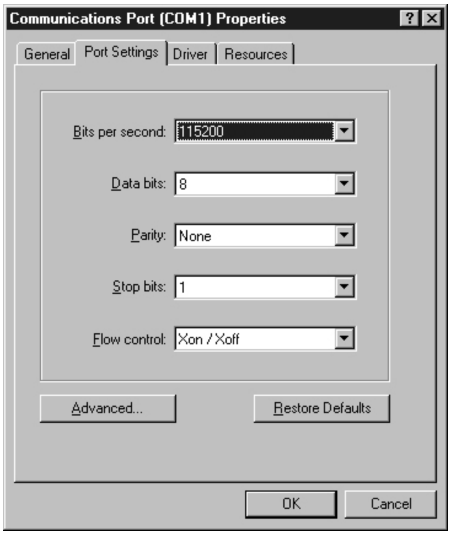
Computer:

(6-3) Click the "Device manager." Click the "Port (COM/ LPT)" and double-click the "Communication port (COM*)" to be used.


System Properties
General
Device Manager
Hardware Profiles
Performance
View devices by type
View devices by connection
Computer
CDROM
Disk drives
Display adapters
Floppy disk controllers
Hard disk controllers
Keyboard
Modem
Monitors
Network adapters
Ports (COM & LPT)
Communications Port (COM1)
Communications Port (COM2)
ECP Printer Port (LPT1)
Sound, video and game controllers
System devices
Properties
Refresh
Remove
Print...
OK
Cancel

Double-click

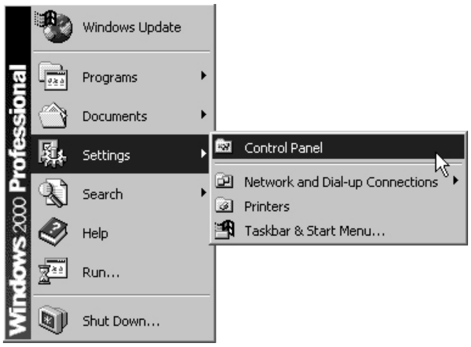
(6-4) Open the "Port setup" tab, and enter "115200" in the column of bit/sec.
If the above communication speed cannot be set, select and set one of the following speeds.
9600/19200/38600/57600


Communications Port (COM1) Properties
General
Port Settings
Driver
Resources
Advanced...
Restore Defaults
OK
Cancel

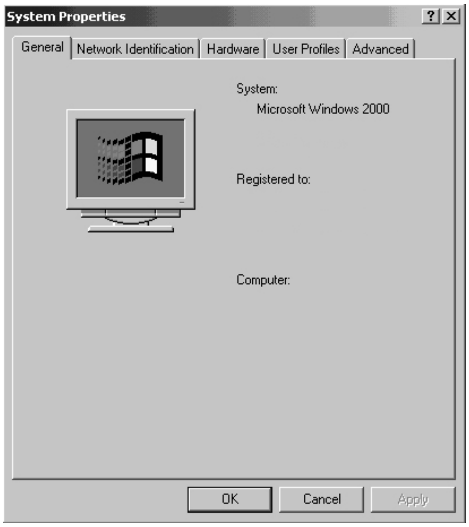
Bits per second: 115200
Data bits: 8
Parity: None
Stop bits: 1
Flow control: Xon / Xoff

In the case of Windows 2000:

(6-1) Open the "Control panel."

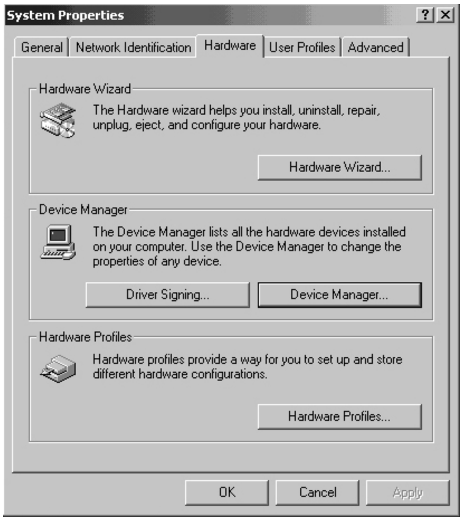

Windows 2000 Professional
Windows Update
Programs
Documents
Settings
Search
Help
Run...
Shut Down...
Control Panel
Network and Dial-up Connections
Printers
Taskbar & Start Menu...

(6-2) Open the "System."


System Properties
General
Network Identification
Hardware
User Profiles
Advanced
OK
Cancel
Apply

System:
Microsoft Windows 2000
Registered to:
Computer:

(6-3) Select the "Device manager (D)" on the hardware menu.

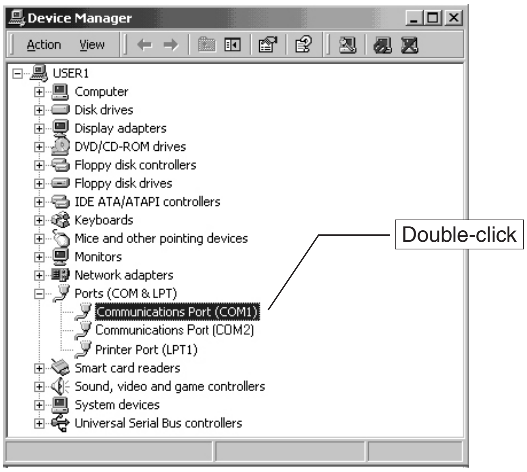

System Properties
General
Network Identification
Hardware
User Profiles
Advanced
Hardware Wizard
Hardware Wizard...
Device Manager
Driver Signing...
Device Manager...
Hardware Profiles
Hardware Profiles...
OK
Cancel
Apply

The Hardware wizard helps you install, uninstall, repair, unplug, eject, and configure your hardware.

The Device Manager lists all the hardware devices installed on your computer. Use the Device Manager to change the properties of any device.

Hardware profiles provide a way for you to set up and store different hardware configurations.

(6-4) Click the "Port (COM/LPT)" and douche-click the "Communication port (COM*)" to be used.

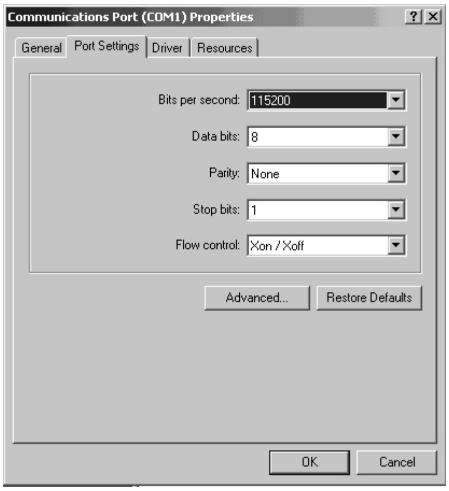

Device Manager
Action
View
USER1
Computer
Disk drives
Display adapters
DVD/CD-ROM drives
Floppy disk controllers
Floppy disk drives
IDE ATA/ATAPI controllers
Keyboards
Mice and other pointing devices
Monitors
Network adapters
Ports (COM & LPT)
Communications Port (COM1)
Communications Port (COM2)
Printer Port (LPT1)
Smart card readers
Sound, video and game controllers
System devices
Universal Serial Bus controllers

Double-click

(6-5) Open the "Port setup" tab, and enter "115200" in the column of bit/sec.

If the above communication speed cannot be set, select and set one of the following speeds.

9600/19200/38600/57600


Communications Port (COM1) Properties

Bits per second: 115200

Data bits: 8

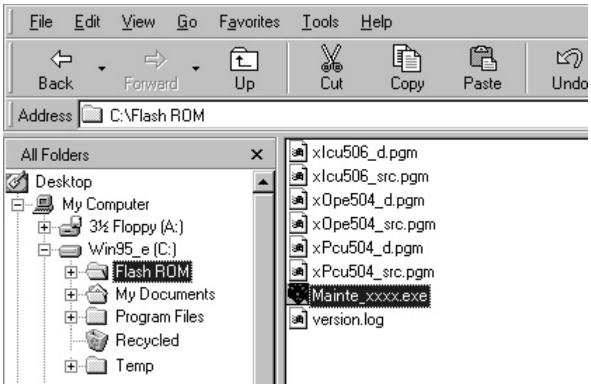
Parity: None

Stop bits: 1

Flow control: Xon / Xoff

General
Port Settings
Driver
Resources
Advanced...
Restore Defaults
OK
Cancel

7) Start the download program on the computer side. (Double-click the Mainte.exe file.)

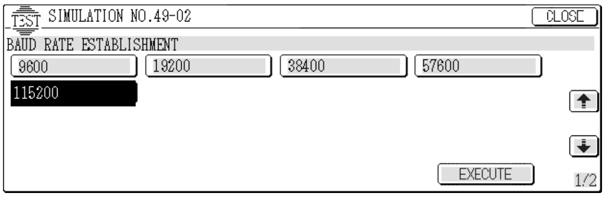

Address: C:\Flash ROM

xIcu506_d.pgm
xIcu506_src.pgm
xOpe504_d.pgm
xOpe504_src.pgm
xPcu504_d.pgm
xPcu504_src.pgm
Mainte_xxxx.exe
version.log

File
Edit
View
Go
Favorites
Tools
Help
Back
Forward
Up
Cut
Copy
Paste
Undo
All Folders
Desktop
My Computer
3½ Floppy (A:)
Win95_e (C:)
Flash ROM
My Documents
Program Files
Recycled
Temp

8) Set the communication speed on the machine side. The set value of communication speed on the computer side must be the same as that on the machine side.

(8-1) Enter the simulation 49-2 mode.


SIMULATION NO.49-02

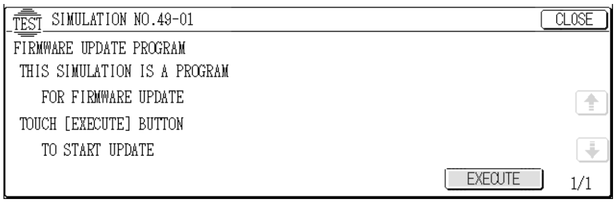
BAUD RATE ESTABLISHMENT

TEST
CLOSE
9600
19200
38400
57600
115200
EXECUTE
1/2

(8-2) Press the key of the same communication speed as what is set in procedure 8). (The set communication speed is highlighted.)

(8-3) Cancel the simulation 49-2.

9) Enter the simulation mode 49-1 mode, and press the ENTER key. (The machine enters the download (Flash ROM writing) mode.)

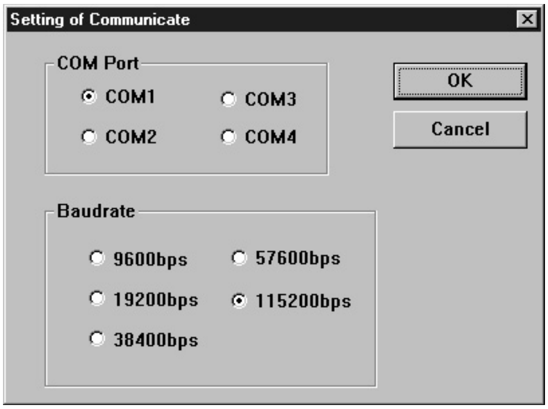

SIMULATION NO.49-01

FIRMWARE UPDATE PROGRAM

THIS SIMULATION IS A PROGRAM
FOR FIRMWARE UPDATE
TOUCH [EXECUTE] BUTTON
TO START UPDATE

TEST
CLOSE
EXECUTE
1/1

10) Select the communication speed on the option menu. (Set the communication speed same as what is set in procedures 6) and 8).)

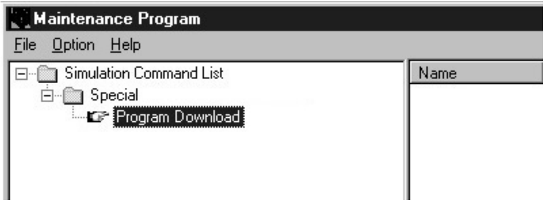

Setting of Communicate

COM Port: ● COM1 ○ COM2 ○ COM3 ○ COM4

Baudrate: ○ 9600bps ○ 19200bps ○ 38400bps ○ 57600bps ● 115200bps

11) Select the data file to be copied (written) to the Flash ROM installed to the Write socket on the ICU MAIN PWB in procedure 1).

(11-1) Double-click the "Simulation Command List " holder.

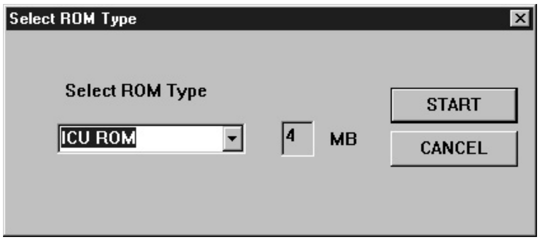

Maintenance Program
File
Option
Help
Simulation Command List
Special
Program Download
Name

(11-2) Double-click the "Special" holder.

(11-3) Double-click the "Program Download" file.

(11-4) The message of "Program Download OK ?" is displayed. Press the OK button.

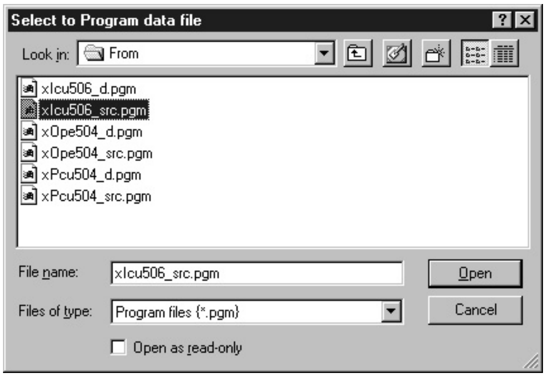
(11-5) Select the data (PWB name) to be written and click the START button.


Select ROM Type

Select ROM Type: ICU ROM 4 MB

START
CANCEL

(11-6) Select the data file to be written, and click the "Open" button.


Select to Program data file

Look in: From

xIcu506_d.pgm
xIcu506_src.pgm
xOpe504_d.pgm
xOpe504_src.pgm
xPcu504_d.pgm
xPcu504_src.pgm

File name: xIcu506_src.pgm

Files of type: Program files (*.pgm)

☐ Open as read-only

Open
Cancel

With the above procedure, downloading (writing to the Flash ROM) is started.

(NOTE) Selection of data files to be written determines whether a source ROM (which includes the latest version program and the Flash ROM copy program) or a ROM which has only the latest version program is made.

12) Confirm that downloading (copying to the Flash ROM) is completed on the computer display and on the LCD display. It normally takes 5 to 7 minutes to copy (write) to the Flash ROM.

When downloading is normally completed, the following indications are shown.

- ∗ LED3 on the ICU PWB are turned off, and LED1 and LED2 flash at a low speed.
- ∗ "FIRMWARE UPGRADE FINISHED" is displayed on the LCD.

13) Cancel the simulation 49-1, and turn off the power of the machine.

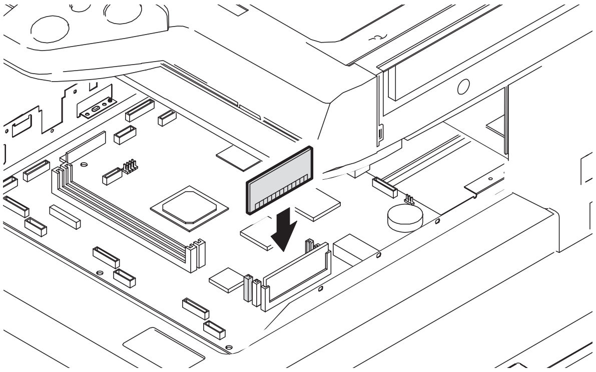
(Note) If the Flash ROM is removed from or installed to the machine with the machine power ON, the Flash ROM may be destroyed. Be sure to turn off the power of the machine before removing or installing the Flash ROM.

14) Remove the Flash ROM (which was upgraded) installed to the ICU MAIN PWB Write socket in procedure 1).

When another Flash ROM is to be upgraded, install it to the ICU PWB Write socket and turn on the power, and perform procedures 11) through 14).

B. Method using two Flash ROM sockets on the ICU MAIN PWB to copy between Flash ROM's

1) Check that the power of the machine is OFF. Install the Flash ROM (of either of ICU PWB, PCU PWB, or operation control PWB) to the ICU PWB Write socket.



2) Install the source Flash ROM (which has the program data of either of ICU PWB, PCU PWB, or operation control PWB) to the ICU PWB Read socket.
3) Turn on the power of the machine. Copying is started. When copying is completed, LED3 on the ICU PWB are turned off, and LED1 and LED2 flash at a low speed. It normally takes 30 to 60 sec to copy (write) to the Flash ROM.
4) Turn off the power of the machine, and remove the Flash ROM's from the Read and the Write sockets.

(After work)

1) Installed the copied Flash ROM to the specified PWB.
2) Turn on the power of the machine and check that the machine operates normally.
3) Use the simulation 22-5 to check each ROM version.
4) Install the shield plate and the stopper shift. (3 screws)
5) Attach the right upper cabinet of the machine. (2 screws)

(NOTE)

The monitor displays before and after and during the Flash ROM version up (copy) operation are shown below. If the Flash ROM version up operation is not completed normally or if the Flash ROM is not installed to the socket properly, a trouble code is displayed. In that case, perform the countermeasures shown in the table below.

(1) ICU MAIN PWB monitor LED lighting specification

The monitor LED status during copy (write) operation of PC to Flash ROM and Flash ROM to Flash ROM is shown below. In the copy mode of Flash ROM to Flash ROM, the machine status is indicated only with the monitor LED.

While in the copy mode of PC to Flash ROM, the status is indicated on the operation panel or the PC monitor.

Status LED lighting specifications

	LED1	LED2	Mode
Status 1	Low-speed flashing	Low-speed flashing	Normal operation
Status 2	High-speed flashing	High-speed flashing	System down
Display when writing the program data from PC to Flash ROM			
Status 3	ON	OFF	Download SIM start
Status 4	OFF	Flashing	Download ROM not-installed error
Status 5	Flashing	ON	During data transfer from PC
Status 6	Flashing	Flashing	Data transfer error from PC
Status 7	ON	ON	Flash deleting
Status 8	OFF	Flashing	Flash deleting error
Status 9	Flashing	ON	Flash writing
Status 10	Flashing	Flashing	Flash writing error
Status 11	ON	ON	Verifying
Status 12	ON	Flashing	Verifying error
Status 13	Low-speed flashing	Low-speed flashing	Normal completion

	LED1	LED2	Mode
Display when copying data from Flash ROM to Flash ROM			
Status 14	ON	ON	ROM copy start
Status 15	OFF	Flashing	Download ROM not-installed error
Status 16	ON	ON	ROM capacity checking
Status 17	ON	Flashing	ROM capacity check error
Status 18	ON	ON	Flash deleting
Status 19	OFF	Flashing	Flash deleting error
Status 20	Flashing	ON	Flash writing
Status 21	Flashing	Flashing	Flash writing error
Status 22	ON	ON	Verifying
Status 23	ON	Flashing	Verifying error
Status 24	Low-speed flashing	Low-speed flashing	Normal completion

Status in bold means an error

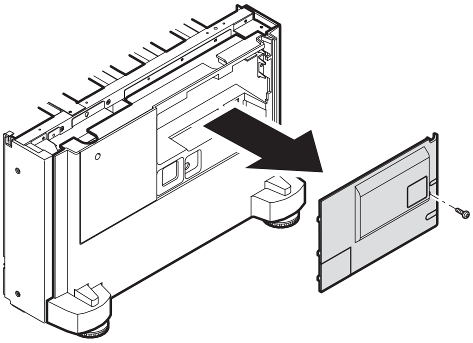
(2) Operation panel display specifications (SIM 49-1)
The operation panel display status in PC to Flash ROM copying (writing) is shown in the table below.

Display message	Operation/Content	Countermeasures
NOW EXECUTING ...	Simulation start	
THIS COPIER IS NOT CONNECTED TO PC.	The cable is not connected.	Turn off the power of the copier machine, and check the connection again.
FLASH ROM ISN'T INSERTED INTO A CONNCTOR.	The writing Flash ROM is not inserted into the socket.	Turn off the copier machine, insert the Flash ROM.
WAITING FOR DATA	Waiting for starting the Flash ROM writing software on PC side	Boot the software for writing to Flash ROM on PC.
ERASING FLASH ...	Deleting	
WRITING FLASH ...	Writing	
VERIFYING FLASH ...	Verifying	
FLASH ERASE ERROR.	Failure in erase of Flash ROM for writing	Try again, or replace the Flash ROM.
FLASH WRITE ERROR.	Failure in copy (write) of Flash ROM for writing	Try again, or replace the Flash ROM.
FLASH VERIFY ERROR.	Failure in verifying Flash ROM content for writing	Try again, or replace the Flash ROM.
DOWNLOADING NOW ...	Data downloading	
DOWNLOAD ERROR.	Data transfer failure	Tray data transfer again, or tray simulation again.
FIRMWARE UPGRADE FINISHED.	Data transfer complete	
THIS SIMULATION DOES NOT WORK IN THIS ROM VERSION.	Displayed when ICU Flash ROM does not support this simulation.	ICU Flash ROM Version up

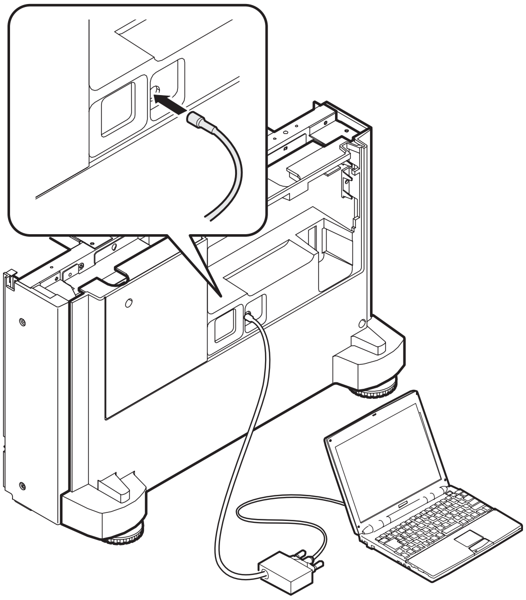
When the power of PC is down during data transfer, data transfer is performed from the beginning.

(In the case of Desk control PWB)

1) Remove the desk unit power source cover. (One screw)



2) Check that the machine power is off, and connect the PC and the level converter desk unit serial I/F connector and the level converter.

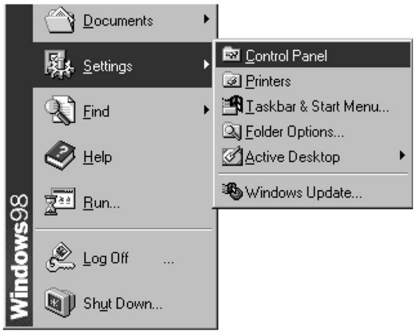


3) Turn on the PC, and start Windows.

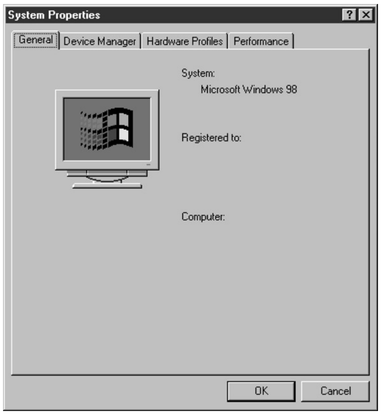
4) Set the data transfer speed of PC.

In the case of Windows 95/98:

(4-1) Open the "Control panel."


Documents
Settings
Find
Help
Run...
Log Off ...
Shut Down...
Windows98
Control Panel
Printers
Taskbar & Start Menu...
Folder Options...
Active Desktop
Windows Update...

(4-2) Open the "System."

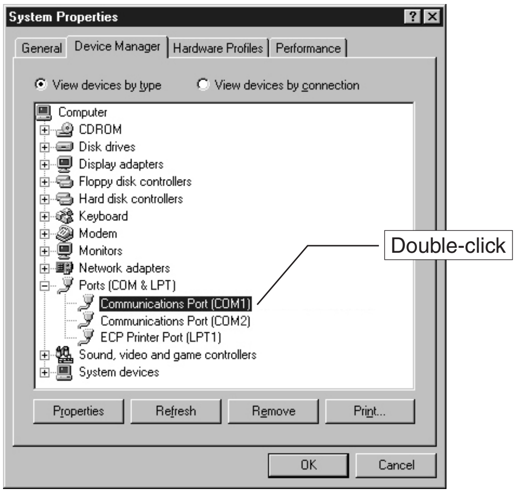

System Properties
General
Device Manager
Hardware Profiles
Performance
OK
Cancel

System:
Microsoft Windows 98

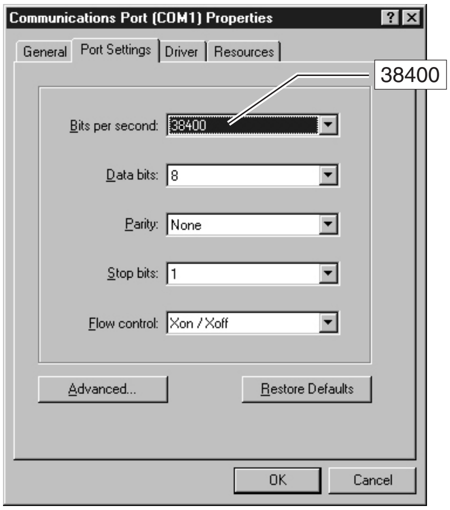
Registered to:

Computer:

(4-3) Click the "Device manager" and click the "Port (COM/LPT)," and double-click the "Communication port (COM*) to be used.


System Properties
General
Device Manager
Hardware Profiles
Performance
View devices by type
View devices by connection
Computer
CDROM
Disk drives
Display adapters
Floppy disk controllers
Hard disk controllers
Keyboard
Modem
Monitors
Network adapters
Ports (COM & LPT)
Communications Port (COM1)
Communications Port (COM2)
ECP Printer Port (LPT1)
Sound, video and game controllers
System devices
Properties
Refresh
Remove
Print...
OK
Cancel
Double-click

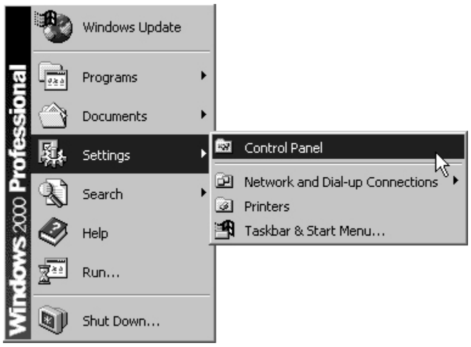
(4-4) Set the bit/sec of port set menu to 38400.
If 38400 cannot be set, set either of the following communication speeds.
9600/19200


Communications Port (COM1) Properties
General
Port Settings
Driver
Resources
38400
Advanced...
Restore Defaults
OK
Cancel

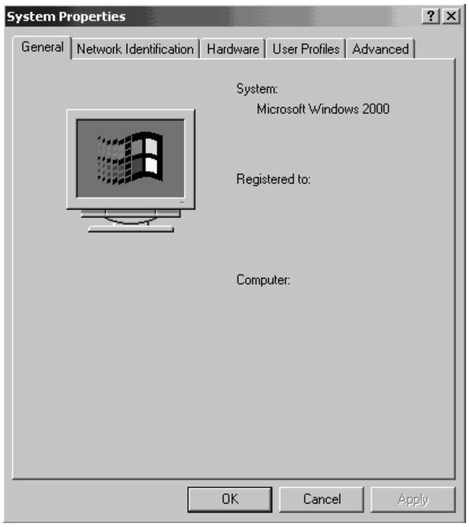
Bits per second: 38400
Data bits: 8
Parity: None
Stop bits: 1
Flow control: Xon / Xoff

In the case of Windows 2000:

(4-1) Open the "Control panel."

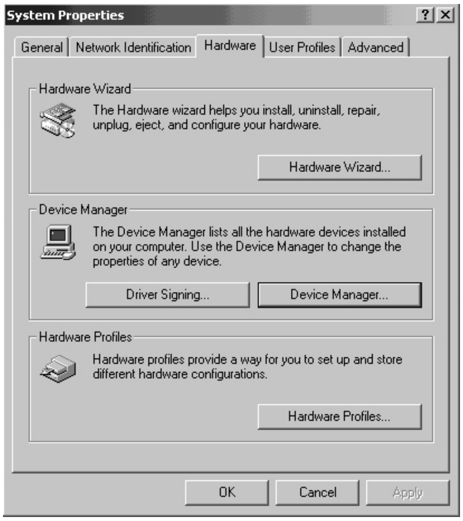

Windows 2000 Professional
Windows Update
Programs
Documents
Settings
Search
Help
Run...
Shut Down...
Control Panel
Network and Dial-up Connections
Printers
Taskbar & Start Menu...

(4-2) Open the "System."


System Properties
General
Network Identification
Hardware
User Profiles
Advanced
OK
Cancel
Apply

System:
Microsoft Windows 2000
Registered to:
Computer:

(4-3) Open the "Device manager" on the hardware menu.

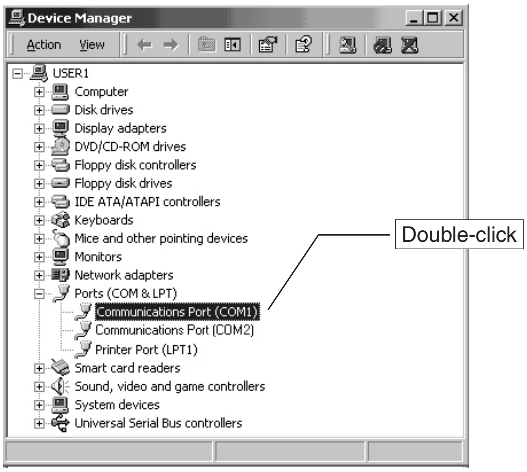

System Properties
General
Network Identification
Hardware
User Profiles
Advanced
Hardware Wizard
Hardware Wizard...
Device Manager
Driver Signing...
Device Manager...
Hardware Profiles
Hardware Profiles...
OK
Cancel
Apply

The Hardware wizard helps you install, uninstall, repair, unplug, eject, and configure your hardware.

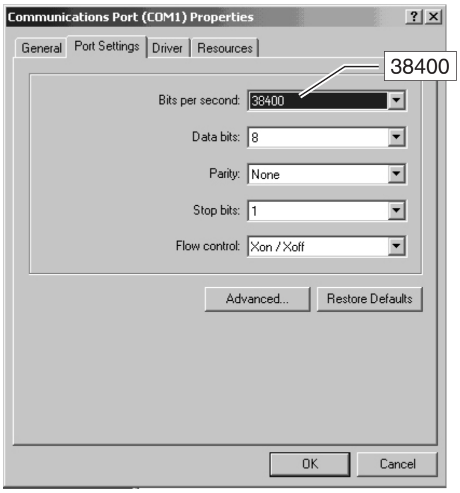
The Device Manager lists all the hardware devices installed on your computer. Use the Device Manager to change the properties of any device.

Hardware profiles provide a way for you to set up and store different hardware configurations.

(4-4) Click the "Port (COM/LPT)", and double-click the "Communication port (COM*)" to be used.


Device Manager
Action
View
USER1
Computer
Disk drives
Display adapters
DVD/CD-ROM drives
Floppy disk controllers
Floppy disk drives
IDE ATA/ATAPI controllers
Keyboards
Mice and other pointing devices
Monitors
Network adapters
Ports (COM & LPT)
Communications Port (COM1)
Communications Port (COM2)
Printer Port (LPT1)
Smart card readers
Sound, video and game controllers
System devices
Universal Serial Bus controllers
Double-click

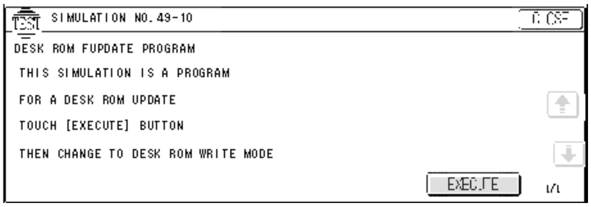
(4-5) Set the bit/sec of the port set menu to 38400, and click the OK button to close the communication port (COM*) property.
If 38400 cannot be set, set either of the following communication speeds.
9600/19200


Communications Port (COM1) Properties
General
Port Settings
Driver
Resources
38400
Advanced...
Restore Defaults
OK
Cancel

Bits per second: 38400
Data bits: 8
Parity: None
Stop bits: 1
Flow control: Xon / Xoff

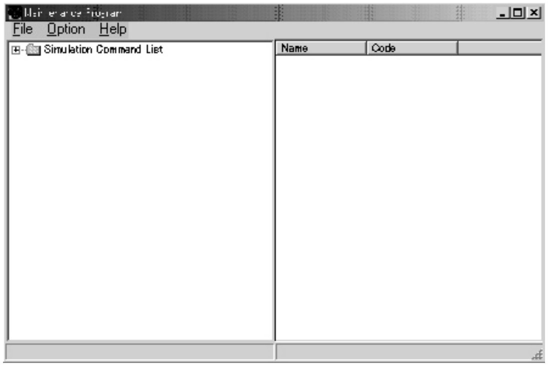
5) Turn on the power of the machine.

6) Enter the simulation 49-10 mode. (Press the EXECUTE key to enter the download (Flash ROM writing) mode.)

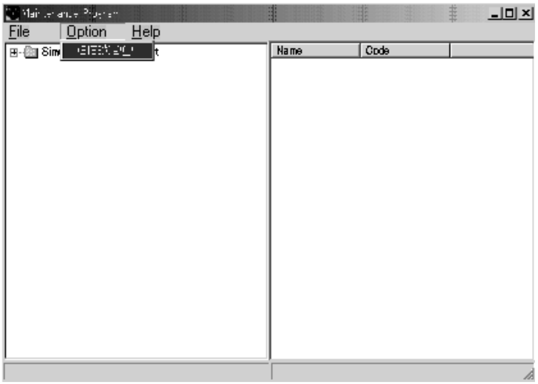

TEST
C.CS
EXECUTE
1/1

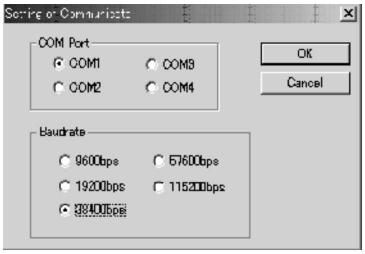
SIMULATION NO. 49-10
DESK ROM FUPDATE PROGRAM
THIS SIMULATION IS A PROGRAM
FOR A DESK ROM UPDATE
TOUCH [EXECUTE] BUTTON
THEN CHANGE TO DESK ROM WRITE MODE

7) Start the download program on the PC side by double-clicking the Mainte.exe file. The following window is indicated.


Maintenance Program
File
Option
Help
Simulation Command List
Name
Code

8) Select the communication setup in the option menu, and set the communication speed same as which is set in procedure 4).


Maintenance Program
File
Option
Help
Name
Code

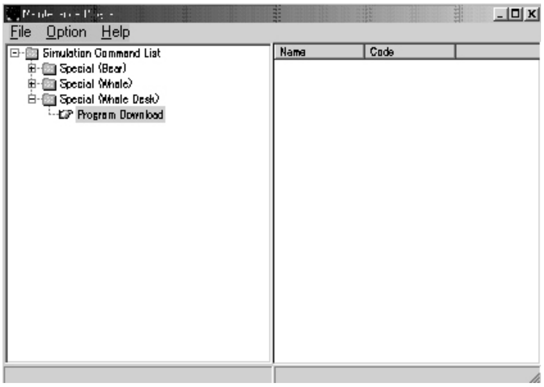

Setting of Communication
OK
Cancel

COM Port: ○ COM1 ● COM1 ○ COM2 ○ COM3 ○ COM4

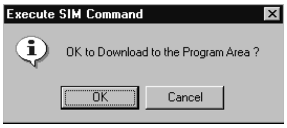
COM Port
● COM1
○ COM2
○ COM3
○ COM4

Baudrate
○ 9600bps
○ 19200bps
● 38400bps
○ 57600bps
○ 115200bps

9) Select the data file to be written.
(9-1) Double-click the Simulation Command List folder.
(9-2) Double-click the Special (Whale Desk) folder.

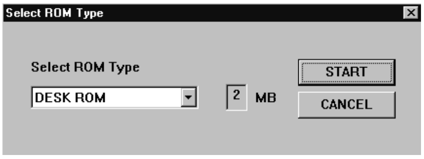

Maintenance Program
File
Option
Help
Simulation Command List
Special (Bear)
Special (Whale)
Special (Whale Desk)
Program Download
Name
Code

(9-3) Double-click the file Program Download, and the following dialog is displayed. Click the OK button.


Execute SIM Command
OK
Cancel

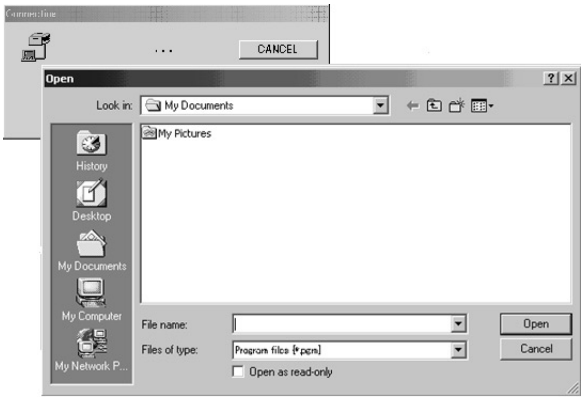
OK to Download to the Program Area ?

(9-4) Then the following dialog is displayed. Click the START button.


Select ROM Type
START
CANCEL

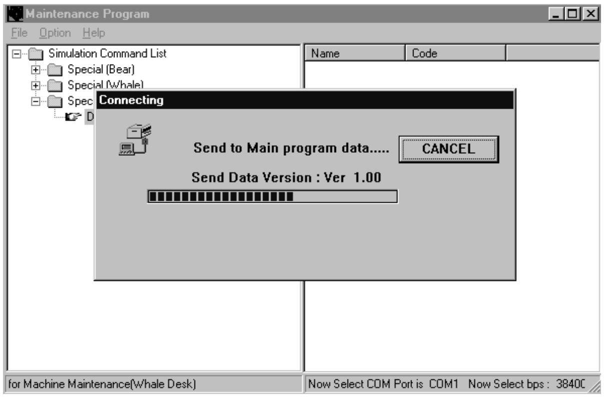
Select ROM Type: DESK ROM 2 MB

(9-5) The file selection dialog is displayed. Select the data file to be written, and click the Open button.


Connection
...
CANCEL
Open
History
Desktop
My Documents
My Computer
My Network P...
My Pictures
Open
Cancel

Look in: My Documents
File name:
Files of type: Program files (*.pgm)
☐ Open as read-only

10) With the above procedures, writing is started and the following display is shown.


Maintenance Program
File Option Help
Simulation Command List
Special (Bear)
Special (Whale)
Spec
D
Name
Code
Connecting
CANCEL

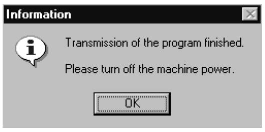
Send to Main program data.....

Send Data Version : Ver 1.00

for Machine Maintenance(Whale Desk)

Now Select COM Port is COM1 Now Select bps : 38400

11) Check on the PC display that writing is completed. (When writing is normally completed, the following dialog is displayed.)


Information
OK

Transmission of the program finished.

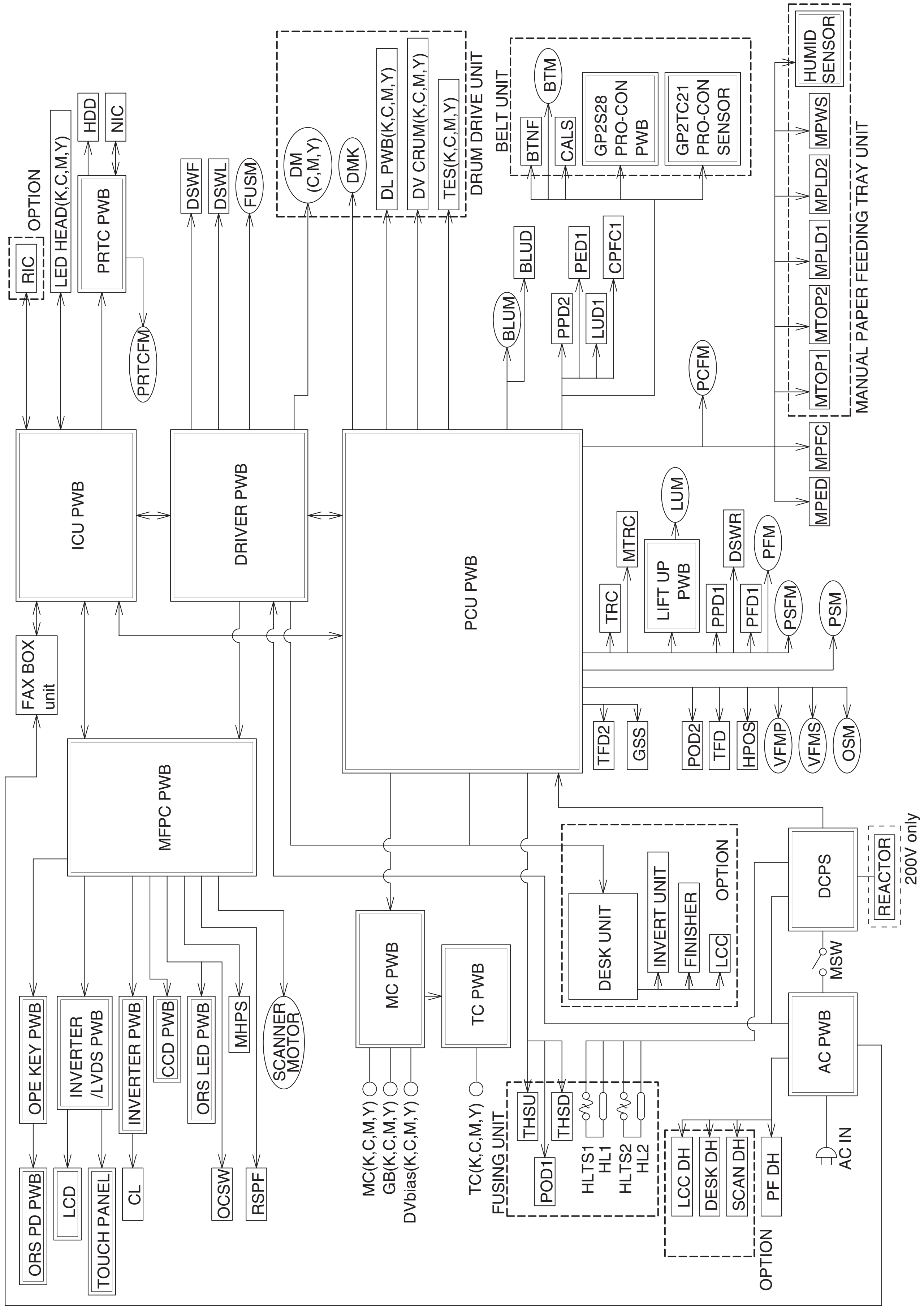
Please turn off the machine power.

12) Turn off the machine power, and disconnect the level converter.

(NOTE) When connecting or disconnecting the level converter, be sure to turn off the machine power in advance. If the level converter is connected or disconnected with the power ON, the level converter may be damaged.

[13] ELECTRIC DIAGRAM

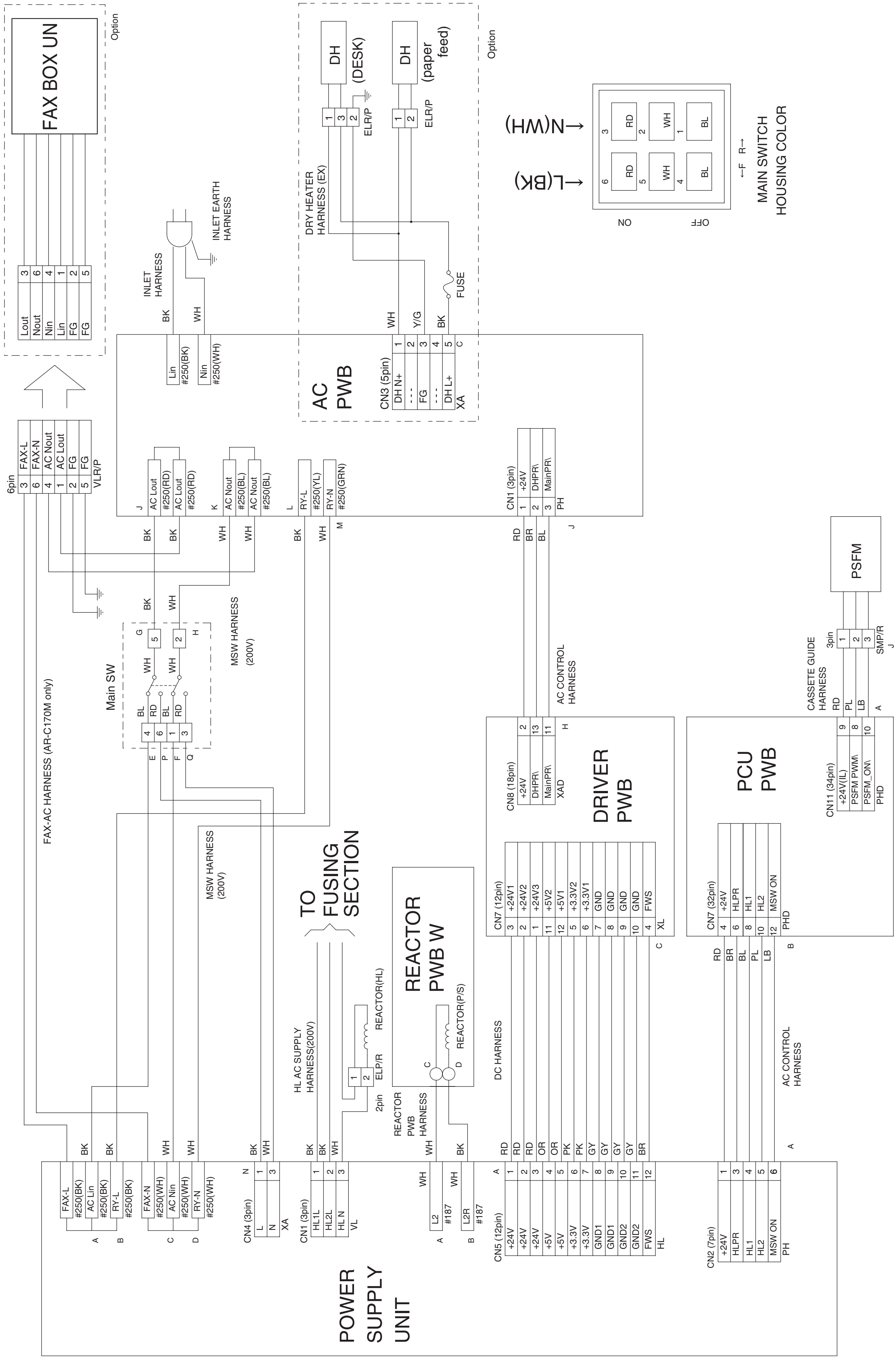
1. System block diagram



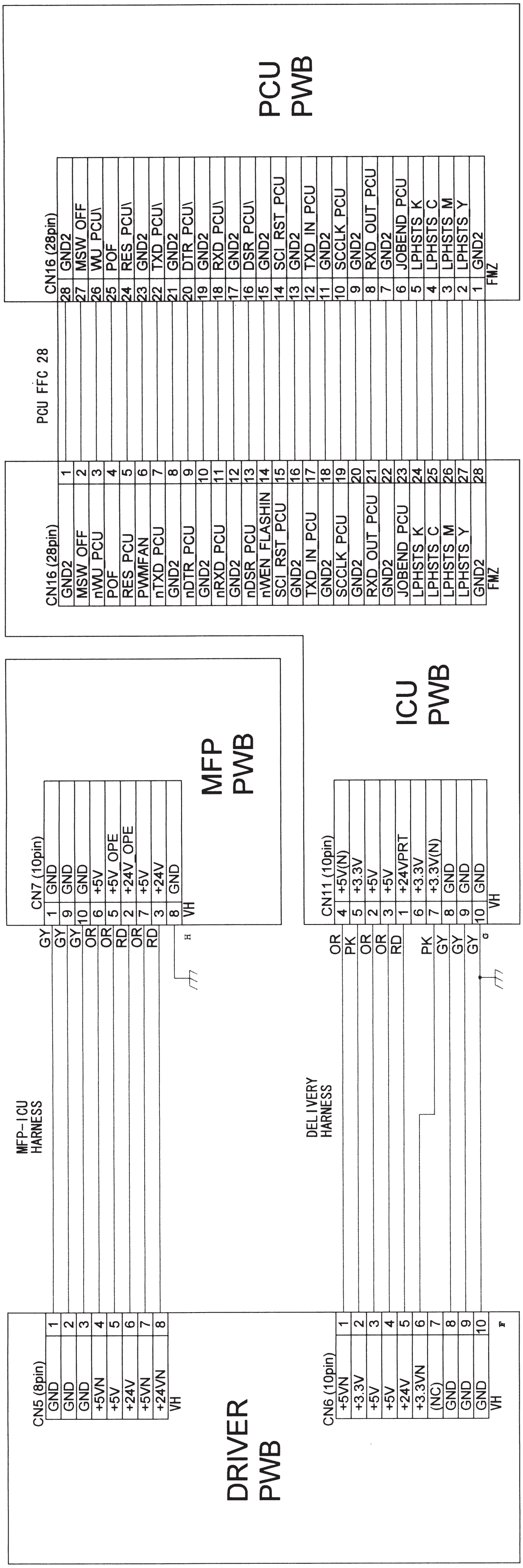
RIC
OPTION
LED HEAD(K,C,M,Y)
PRTC PWB
HDD
NIC
PRTCFM
DSWF
DSWL
FUSM
DM (C,M,Y)
DMK
DL PWB(K,C,M,Y)
DV CRUM(K,C,M,Y)
TES(K,C,M,Y)
DRUM DRIVE UNIT
BELT UNIT
BTNF
BTM
CALS
GP2S28 PRO-CON PWB
GP2TC21 PRO-CON SENSOR
HUMID SENSOR
MPWS
MPLD2
MPLD1
MTOP2
MTOP1
MANUAL PAPER FEEDING TRAY UNIT
BLUD
BLUM
PED1
CPFC1
PPD2
LUD1
PCFM
MPFC
MPED
ICU PWB
DRIVER PWB
PCU PWB
LUM
MTRC
LIFT UP PWB
DSWR
PFM
TRC
PPD1
PFD1
PSFM
PSM
FAX BOX unit
TFD2
GSS
POD2
TFD
HPOS
VFMP
VFMS
OSM
MFPC PWB
DESK UNIT
INVERT UNIT
FINISHER
LCC
OPTION
DCPS
REACTOR
200V only
MSW
MC PWB
TC PWB
AC PWB
OPE KEY PWB
INVERTER /LVDS PWB
INVERTER PWB
CCD PWB
ORS LED PWB
MHPS
SCANNER MOTOR
MC(K,C,M,Y)
GB(K,C,M,Y)
DVbias(K,C,M,Y)
TC(K,C,M,Y)
THSU
THSD
POD1
HLTS1
HL1
HLTS2
HL2
FUSING UNIT
LCC DH
DESK DH
SCAN DH
PF DH
OPTION
AC IN
ORS PD PWB
LCD
TOUCH PANEL
CL
OCSW
RSPF

2. Actual wiring chart

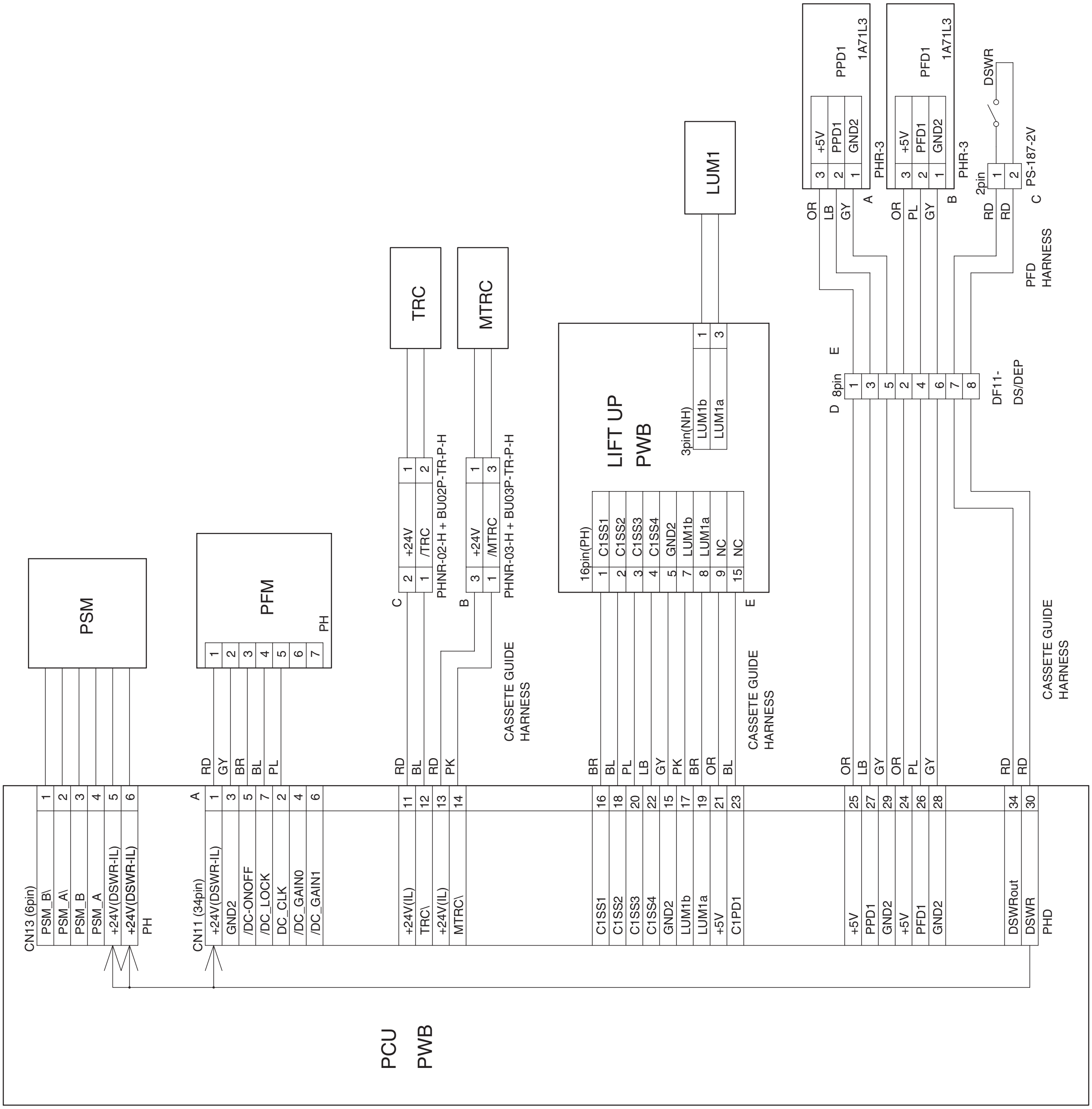
A. AC circuit section (200V)


FAX BOX UN
Option
Lout 3
Nout 6
Nin 4
Lin 1
FG 2
FG 5
6pin
3 FAX-L
6 FAX-N
4 AC Nout
1 AC Lout
2 FG
5 FG
VLR/P
FAX-AC HARNESS (AR-C170M only)
INLET HARNESS
INLET EARTH HARNESS
BK
WH
Lin #250(BK)
Nin #250(WH)
AC PWB
CN3 (5pin)
DH N+ 1
--- 2
FG 3
--- 4
DH L+ 5
XA
C
DRY HEATER HARNESS (EX)
DH (DESK)
DH (paper feed)
ELR/P
FUSE
Y/G
Option
N(WH)
L(BK)
ON
OFF
RD
WH
BL
←F R→
MAIN SWITCH HOUSING COLOR
J AC Lout #250(RD) AC Lout #250(RD)
K AC Nout #250(BL) AC Nout #250(BL)
L RY-L #250(YL) RY-N #250(GRN)
M
CN1 (3pin)
1 +24V
2 DHPR\
3 MainPR\
PH
RD BR BL
J
Main SW
G 5 H 2
BL RD BL RD
4 6 1 3
E P F Q
MSW HARNESS (200V)
AC CONTROL HARNESS
DRIVER PWB
CN8 (18pin)
+24V 2
DHPR\ 13
MainPR\ 11
XAD
H
CN7 (12pin)
3 +24V1
2 +24V2
1 +24V3
11 +5V2
12 +5V1
5 +3.3V2
6 +3.3V1
7 GND
8 GND
9 GND
10 GND
4 FWS
XL
C
PSFM
3pin
1 2 3
SMP/R
J
CASSETE GUIDE HARNESS
RD PL LB
A
PCU PWB
CN11 (34pin)
+24V(IL) 9
PSFM PWM\ 8
PSFM_ON\ 10
PHD
CN7 (32pin)
4 +24V
6 HLPR
8 HL1
10 HL2
12 MSW ON
PHD
B
RD BR BL PL LB
TO FUSING SECTION
REACTOR PWB W
REACTOR(P/S)
C D
REACTOR(HL)
ELP/R
1 2
2pin
HL AC SUPPLY HARNESS(200V)
REACTOR PWB HARNESS
DC HARNESS
AC CONTROL HARNESS
A
POWER SUPPLY UNIT
A FAX-L #250(BK) AC Lin #250(BK)
B RY-L #250(BK)
C FAX-N #250(WH) AC Nin #250(WH)
D RY-N #250(WH)
CN4 (3pin)
L 1
N 3
XA
N
CN1 (3pin)
HL1L 1
HL2L 2
HL N 3
VL
A L2 #187
B L2R #187
WH
CN5 (12pin)
+24V 1 RD
+24V 2 RD
+24V 3 RD
+5V 4 OR
+5V 5 OR
+3.3V 6 PK
+3.3V 7 PK
GND1 8 GY
GND1 9 GY
GND2 10 GY
GND2 11 GY
FWS 12 BR
HL
CN2 (7pin)
+24V 1
HLPR 3
HL1 4
HL2 5
MSW ON 6
PH

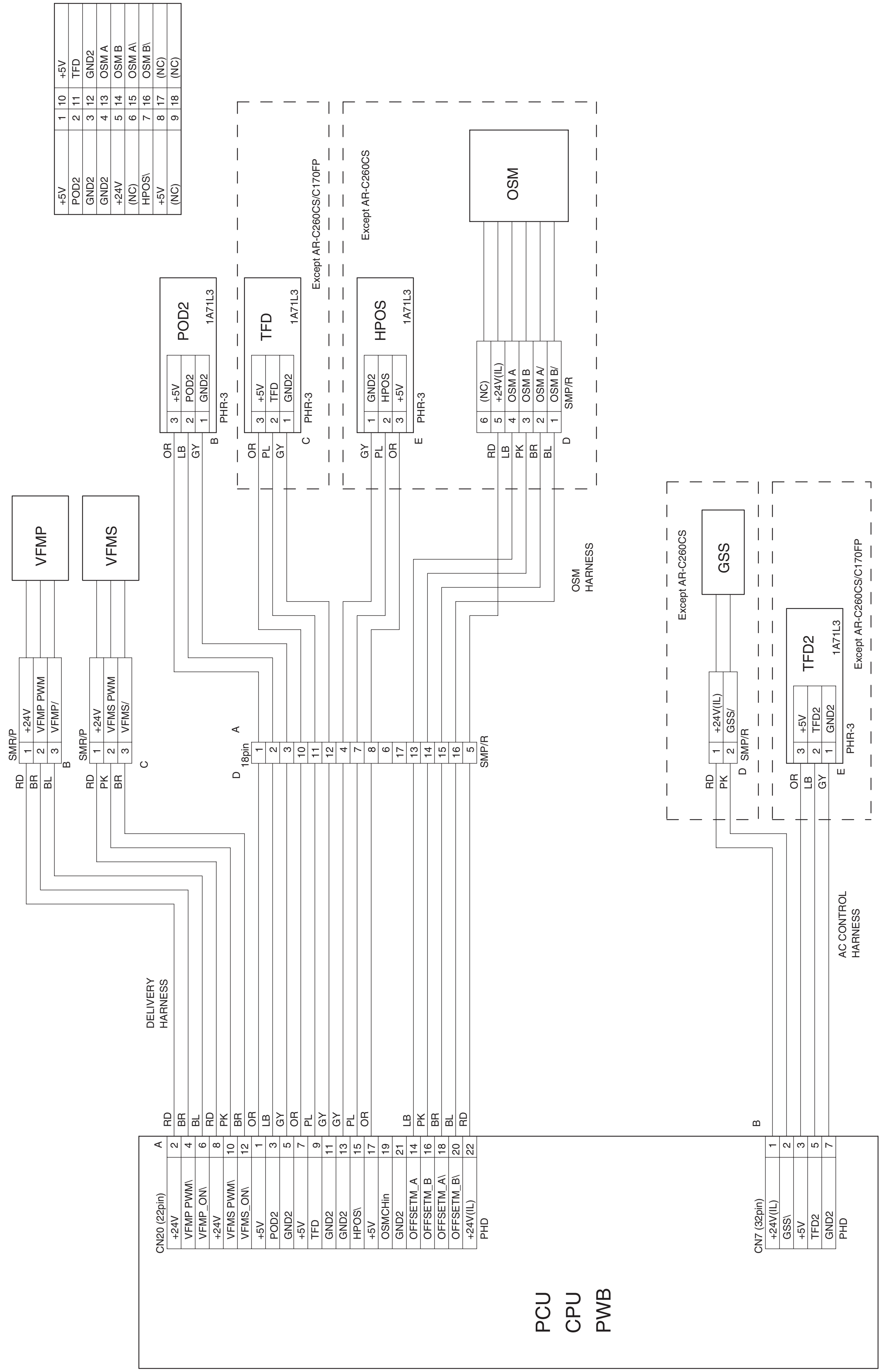
B. PCU-ICU section


PCU PWB
CN16 (28pin)
28 GND2
27 MSW_OFF
26 WU_PCU\
25 POF
24 RES_PCU\
23 GND2
22 TXD_PCU\
21 GND2
20 DTR_PCU\
19 GND2
18 RXD_PCU\
17 GND2
16 DSR_PCU\
15 GND2
14 SCI_RST_PCU
13 GND2
12 TXD_IN_PCU
11 GND2
10 SCCLK_PCU
9 GND2
8 RXD_OUT_PCU
7 GND2
6 JOBEND_PCU
5 LPHSTS_K
4 LPHSTS_C
3 LPHSTS_M
2 LPHSTS_Y
1 GND2
FMZ
PCU FFC 28
ICU PWB
CN16 (28pin)
GND2 1
MSW_OFF 2
nWU_PCU 3
POF 4
RES_PCU 5
PWMFAN 6
nTXD_PCU 7
GND2 8
nDTR_PCU 9
GND2 10
nRXD_PCU 11
GND2 12
nDSR_PCU 13
nWEN_FLASHIN 14
SCI_RST_PCU 15
GND2 16
TXD_IN_PCU 17
GND2 18
SCCLK_PCU 19
GND2 20
RXD_OUT_PCU 21
GND2 22
JOBEND_PCU 23
LPHSTS_K 24
LPHSTS_C 25
LPHSTS_M 26
LPHSTS_Y 27
GND2 28
FMZ
MFP PWB
CN7 (10pin)
1 GND
9 GND
10 GND
6 +5V
5 +5V_OPE
2 +24V_OPE
7 +5V
3 +24V
8 GND
VH
GY
GY
GY
OR
OR
RD
OR
RD
H
MFP-ICU HARNESS
CN11 (10pin)
4 +5V(N)
5 +3.3V
2 +5V
3 +5V
1 +24VPRT
6 +3.3V
7 +3.3V(N)
8 GND
9 GND
10 GND
VH
OR
PK
OR
OR
RD
PK
GY
GY
GY
G
DELIVERY HARNESS
DRIVER PWB
CN5 (8pin)
GND 1
GND 2
GND 3
+5VN 4
+5V 5
+24V 6
+5VN 7
+24VN 8
VH
CN6 (10pin)
+5VN 1
+3.3V 2
+5V 3
+5V 4
+24V 5
+3.3VN 6
(NC) 7
GND 8
GND 9
GND 10
VH
F

C. Paper transport section


PSM
PFM
PH
TRC
MTRC
LUM1
LIFT UP PWB
16pin(PH)
1 C1SS1
2 C1SS2
3 C1SS3
4 C1SS4
5 GND2
7 LUM1b
8 LUM1a
9 NC
15 NC
3pin(NH)
1 LUM1b
3 LUM1a
C
2 +24V
1 /TRC
PHNR-02-H + BU02P-TR-P-H
B
3 +24V
1 /MTRC
PHNR-03-H + BU03P-TR-P-H
CASSETE GUIDE HARNESS
E
PPD1
1A71L3
3 +5V
2 PPD1
1 GND2
PHR-3
A
PFD1
1A71L3
3 +5V
2 PFD1
1 GND2
PHR-3
B
DSWR
2pin
PS-187-2V
C
PFD HARNESS
D 8pin E
DF11-DS/DEP
OR LB GY
OR PL GY
RD RD
CN13 (6pin)
1 PSM_B\
2 PSM_A\
3 PSM_B
4 PSM_A
5 +24V(DSWR-IL)
6 +24V(DSWR-IL)
PH
CN11 (34pin)
A
1 +24V(DSWR-IL) RD
3 GND2 GY
5 /DC-ONOFF BR
7 /DC_LOCK BL
2 DC_CLK PL
4 /DC_GAIN0
6 /DC_GAIN1
11 +24V(IL) RD
12 TRC\ BL
13 +24V(IL) RD
14 MTRC\ PK
16 C1SS1 BR
18 C1SS2 BL
20 C1SS3 PL
22 C1SS4 LB
15 GND2 GY
17 LUM1b PK
19 LUM1a BR
21 +5V OR
23 C1PD1 BL
25 +5V OR
27 PPD1 LB
29 GND2 GY
24 +5V OR
26 PFD1 PL
28 GND2 GY
34 DSWRout RD
30 DSWR RD
PHD
PCU PWB

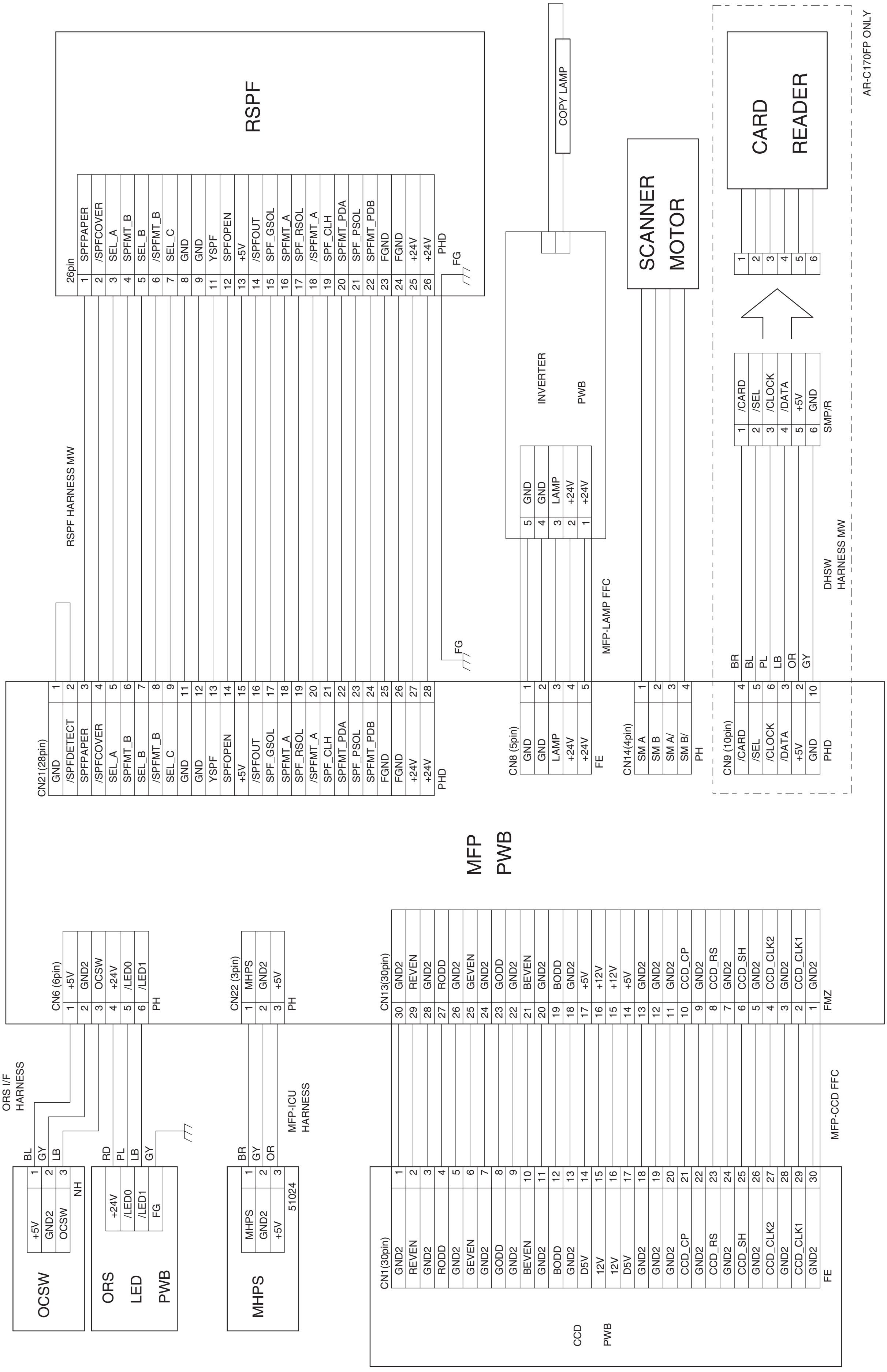
D. Paper exit section



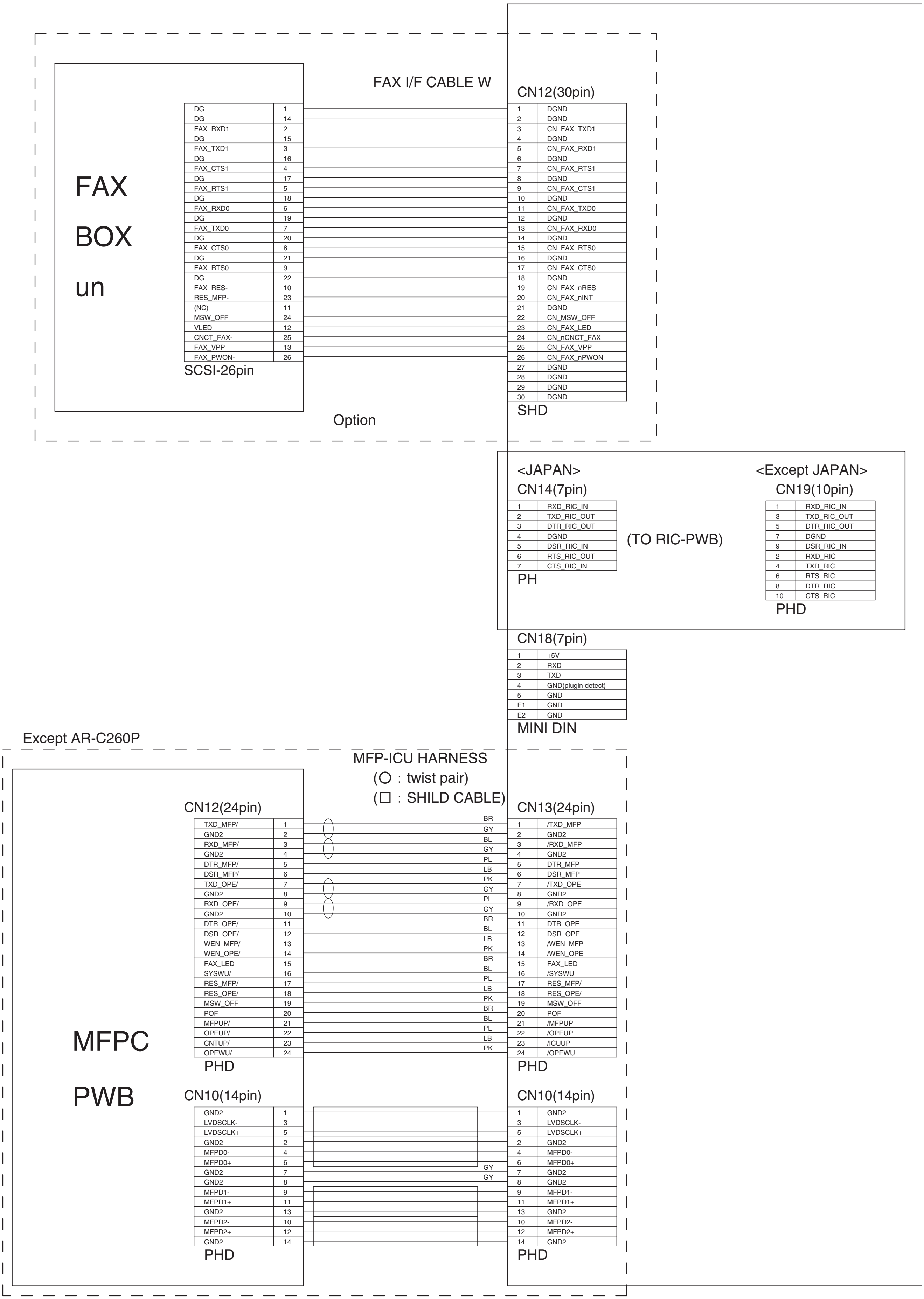
POD2
1A71L3
PHR-3
TFD
Except AR-C260CS/C170FP
HPOS
Except AR-C260CS
OSM
SMP/R
VFMP
VFMS
SMR/P
+24V
VFMP PWM
VFMP/
VFMS PWM
VFMS/
18pin
OSM HARNESS
DELIVERY HARNESS
GSS
+24V(IL)
GSS/
TFD2
AC CONTROL HARNESS
CN20 (22pin)
CN7 (32pin)
+5V
POD2
GND2
TFD
HPOS\
OSMCHin
OFFSETM_A
OFFSETM_B
OFFSETM_A\
OFFSETM_B\
PHD
VFMP PWM\
VFMP_ON\
VFMS PWM\
VFMS_ON\
GSS\
PCU
CPU
PWB

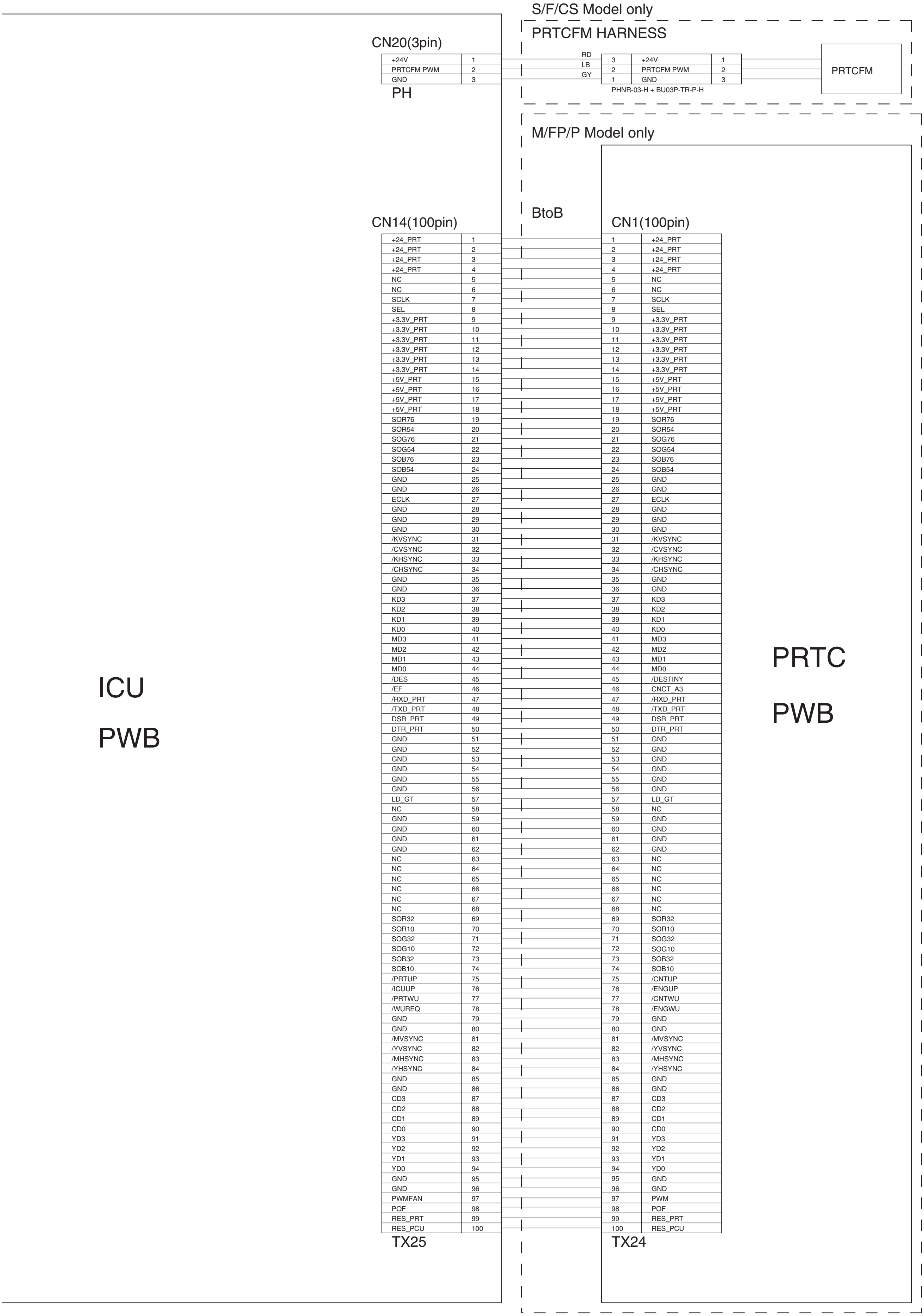
1	+5V	10	+5V
2	POD2	11	TFD
3	GND2	12	GND2
4	GND2	13	OSM A
5	+24V	14	OSM B
6	(NC)	15	OSM A\
7	HPOS\	16	OSM B\
8	+5V	17	(NC)
9	(NC)	18	(NC)

E. MFP section


RSPF
26pin
1 SPFPAPER
2 /SPFCOVER
3 SEL_A
4 SPFMT_B
5 SEL_B
6 /SPFMT_B
7 SEL_C
8 GND
9 GND
11 YSPF
12 SPFOPEN
13 +5V
14 /SPFOUT
15 SPF_GSOL
16 SPFMT_A
17 SPF_RSOL
18 /SPFMT_A
19 SPF_CLH
20 SPFMT_PDA
21 SPF_PSOL
22 SPFMT_PDB
23 FGND
24 FGND
25 +24V
26 +24V
PHD
FG
RSPF HARNESS MW
FG
COPY LAMP
INVERTER
PWB
5 GND
4 GND
3 LAMP
2 +24V
1 +24V
MFP-LAMP FFC
SCANNER
MOTOR
CARD
READER
AR-C170FP ONLY
1
2
3
4
5
6
1 /CARD
2 /SEL
3 /CLOCK
4 /DATA
5 +5V
6 GND
SMP/R
DHSW
HARNESS MW
BR
BL
PL
LB
OR
GY
MFP
PWB
CN21(28pin)
GND 1
/SPFDETECT 2
SPFPAPER 3
/SPFCOVER 4
SEL_A 5
SPFMT_B 6
SEL_B 7
/SPFMT_B 8
SEL_C 9
GND
GND 11
YSPF 12
SPFOPEN 13
+5V 14
/SPFOUT 15
SPF_GSOL 16
SPFMT_A 17
SPF_RSOL 18
/SPFMT_A 19
SPF_CLH 20
SPFMT_PDA 21
SPF_PSOL 22
SPFMT_PDB 23
FGND 24
FGND 25
+24V 26
+24V 27
28
PHD
CN8 (5pin)
GND 1
GND 2
LAMP 3
+24V 4
+24V 5
FE
CN14(4pin)
SM A 1
SM B 2
SM A/ 3
SM B/ 4
PH
CN9 (10pin)
/CARD 4
/SEL 5
/CLOCK 6
/DATA 3
+5V 2
GND 10
PHD
CN6 (6pin)
1 +5V
2 GND2
3 OCSW
4 +24V
5 /LED0
6 /LED1
PH
CN22 (3pin)
1 MHPS
2 GND2
3 +5V
PH
CN13(30pin)
30 GND2
29 REVEN
28 GND2
27 RODD
26 GND2
25 GEVEN
24 GND2
23 GODD
22 GND2
21 BEVEN
20 GND2
19 BODD
18 GND2
17 +5V
16 +12V
15 +12V
14 +5V
13 GND2
12 GND2
11 GND2
10 CCD_CP
9 GND2
8 CCD_RS
7 GND2
6 CCD_SH
5 GND2
4 CCD_CLK2
3 GND2
2 CCD_CLK1
1 GND2
FMZ
ORS I/F
HARNESS
BL
GY
LB
RD
PL
LB
GY
OCSW
+5V 1
GND2 2
OCSW 3
NH
ORS
LED
PWB
+24V
/LED0
/LED1
FG
MFP-ICU
HARNESS
BR
GY
OR
MHPS
MHPS 1
GND2 2
+5V 3
51024
MFP-CCD FFC
CCD
PWB
CN1(30pin)
GND2 1
REVEN 2
GND2 3
RODD 4
GND2 5
GEVEN 6
GND2 7
GODD 8
GND2 9
BEVEN 10
GND2 11
BODD 12
GND2 13
D5V 14
12V 15
12V 16
D5V 17
GND2 18
GND2 19
GND2 20
CCD_CP 21
GND2 22
CCD_RS 23
GND2 24
CCD_SH 25
GND2 26
CCD_CLK2 27
GND2 28
CCD_CLK1 29
GND2 30
FE

F. ICU section


FAX I/F CABLE W
FAX
BOX
un
DG 1
DG 14
FAX_RXD1 2
DG 15
FAX_TXD1 3
DG 16
FAX_CTS1 4
DG 17
FAX_RTS1 5
DG 18
FAX_RXD0 6
DG 19
FAX_TXD0 7
DG 20
FAX_CTS0 8
DG 21
FAX_RTS0 9
DG 22
FAX_RES- 10
RES_MFP- 23
(NC) 11
MSW_OFF 24
VLED 12
CNCT_FAX- 25
FAX_VPP 13
FAX_PWON- 26
SCSI-26pin
Option
CN12(30pin)
1 DGND
2 DGND
3 CN_FAX_TXD1
4 DGND
5 CN_FAX_RXD1
6 DGND
7 CN_FAX_RTS1
8 DGND
9 CN_FAX_CTS1
10 DGND
11 CN_FAX_TXD0
12 DGND
13 CN_FAX_RXD0
14 DGND
15 CN_FAX_RTS0
16 DGND
17 CN_FAX_CTS0
18 DGND
19 CN_FAX_nRES
20 CN_FAX_nINT
21 DGND
22 CN_MSW_OFF
23 CN_FAX_LED
24 CN_nCNCT_FAX
25 CN_FAX_VPP
26 CN_FAX_nPWON
27 DGND
28 DGND
29 DGND
30 DGND
SHD
<JAPAN>
CN14(7pin)
1 RXD_RIC_IN
2 TXD_RIC_OUT
3 DTR_RIC_OUT
4 DGND
5 DSR_RIC_IN
6 RTS_RIC_OUT
7 CTS_RIC_IN
PH
(TO RIC-PWB)
<Except JAPAN>
CN19(10pin)
1 RXD_RIC_IN
3 TXD_RIC_OUT
5 DTR_RIC_OUT
7 DGND
9 DSR_RIC_IN
2 RXD_RIC
4 TXD_RIC
6 RTS_RIC
8 DTR_RIC
10 CTS_RIC
PHD
CN18(7pin)
1 +5V
2 RXD
3 TXD
4 GND(plugin detect)
5 GND
E1 GND
E2 GND
MINI DIN
Except AR-C260P
MFP-ICU HARNESS
(○ : twist pair)
(□ : SHILD CABLE)
MFPC
PWB
CN12(24pin)
TXD_MFP/ 1
GND2 2
RXD_MFP/ 3
GND2 4
DTR_MFP/ 5
DSR_MFP/ 6
TXD_OPE/ 7
GND2 8
RXD_OPE/ 9
GND2 10
DTR_OPE/ 11
DSR_OPE/ 12
WEN_MFP/ 13
WEN_OPE/ 14
FAX_LED 15
SYSWU/ 16
RES_MFP/ 17
RES_OPE/ 18
MSW_OFF 19
POF 20
MFPUP/ 21
OPEUP/ 22
CNTUP/ 23
OPEWU/ 24
PHD
BR
GY
BL
GY
PL
LB
PK
GY
PL
GY
BR
BL
LB
PK
BR
BL
PL
LB
PK
BR
BL
PL
LB
PK
CN13(24pin)
1 /TXD_MFP
2 GND2
3 /RXD_MFP
4 GND2
5 DTR_MFP
6 DSR_MFP
7 /TXD_OPE
8 GND2
9 /RXD_OPE
10 GND2
11 DTR_OPE
12 DSR_OPE
13 /WEN_MFP
14 /WEN_OPE
15 FAX_LED
16 /SYSWU
17 RES_MFP/
18 RES_OPE/
19 MSW_OFF
20 POF
21 /MFPUP
22 /OPEUP
23 /ICUUP
24 /OPEWU
PHD
CN10(14pin)
GND2 1
LVDSCLK- 3
LVDSCLK+ 5
GND2 2
MFPD0- 4
MFPD0+ 6
GND2 7
GND2 8
MFPD1- 9
MFPD1+ 11
GND2 13
MFPD2- 10
MFPD2+ 12
GND2 14
PHD
GY
GY
CN10(14pin)
1 GND2
3 LVDSCLK-
5 LVDSCLK+
2 GND2
4 MFPD0-
6 MFPD0+
7 GND2
8 GND2
9 MFPD1-
11 MFPD1+
13 GND2
10 MFPD2-
12 MFPD2+
14 GND2
PHD



CN20(3pin)

+24V	1	3	+24V	1
PRTCFM PWM	2	2	PRTCFM PWM	2
GND	3	1	GND	3

CN14(100pin) — CN1(100pin)

+24_PRT	1	1	+24_PRT
+24_PRT	2	2	+24_PRT
+24_PRT	3	3	+24_PRT
+24_PRT	4	4	+24_PRT
NC	5	5	NC
NC	6	6	NC
SCLK	7	7	SCLK
SEL	8	8	SEL
+3.3V_PRT	9	9	+3.3V_PRT
+3.3V_PRT	10	10	+3.3V_PRT
+3.3V_PRT	11	11	+3.3V_PRT
+3.3V_PRT	12	12	+3.3V_PRT
+3.3V_PRT	13	13	+3.3V_PRT
+3.3V_PRT	14	14	+3.3V_PRT
+5V_PRT	15	15	+5V_PRT
+5V_PRT	16	16	+5V_PRT
+5V_PRT	17	17	+5V_PRT
+5V_PRT	18	18	+5V_PRT
SOR76	19	19	SOR76
SOR54	20	20	SOR54
SOG76	21	21	SOG76
SOG54	22	22	SOG54
SOB76	23	23	SOB76
SOB54	24	24	SOB54
GND	25	25	GND
GND	26	26	GND
ECLK	27	27	ECLK
GND	28	28	GND
GND	29	29	GND
GND	30	30	GND
/KVSYNC	31	31	/KVSYNC
/CVSYNC	32	32	/CVSYNC
/KHSYNC	33	33	/KHSYNC
/CHSYNC	34	34	/CHSYNC
GND	35	35	GND
GND	36	36	GND
KD3	37	37	KD3
KD2	38	38	KD2
KD1	39	39	KD1
KD0	40	40	KD0
MD3	41	41	MD3
MD2	42	42	MD2
MD1	43	43	MD1
MD0	44	44	MD0
/DES	45	45	/DESTINY
/EF	46	46	CNCT_A3
/RXD_PRT	47	47	/RXD_PRT
/TXD_PRT	48	48	/TXD_PRT
DSR_PRT	49	49	DSR_PRT
DTR_PRT	50	50	DTR_PRT
GND	51	51	GND
GND	52	52	GND
GND	53	53	GND
GND	54	54	GND
GND	55	55	GND
GND	56	56	GND
LD_GT	57	57	LD_GT
NC	58	58	NC
GND	59	59	GND
GND	60	60	GND
GND	61	61	GND
GND	62	62	GND
NC	63	63	NC
NC	64	64	NC
NC	65	65	NC
NC	66	66	NC
NC	67	67	NC
NC	68	68	NC
SOR32	69	69	SOR32
SOR10	70	70	SOR10
SOG32	71	71	SOG32
SOG10	72	72	SOG10
SOB32	73	73	SOB32
SOB10	74	74	SOB10
/PRTUP	75	75	/CNTUP
/ICUUP	76	76	/ENGUP
/PRTWU	77	77	/CNTWU
/WUREQ	78	78	/ENGWU
GND	79	79	GND
GND	80	80	GND
/MVSYNC	81	81	/MVSYNC
/YVSYNC	82	82	/YVSYNC
/MHSYNC	83	83	/MHSYNC
/YHSYNC	84	84	/YHSYNC
GND	85	85	GND
GND	86	86	GND
CD3	87	87	CD3
CD2	88	88	CD2
CD1	89	89	CD1
CD0	90	90	CD0
YD3	91	91	YD3
YD2	92	92	YD2
YD1	93	93	YD1
YD0	94	94	YD0
GND	95	95	GND
GND	96	96	GND
PWMFAN	97	97	PWM
POF	98	98	POF
RES_PRT	99	99	RES_PRT
RES_PCU	100	100	RES_PCU

3. Signal list

Signal name	Name	Function/Operation	Section
APAM	Alignment motor	Aligns paper in ADU.	AR-D19N
APHPS	Alignment plate home position detection	Detects the alignment plate in ADU.	AR-D19N
APPD1	ADU transport sensor 1	Detects paper transport in ADU.	AR-D19N
APPD2	ADU transport sensor 2	Detects paper transport in ADU.	AR-D19N
ARHPS	Bundle roller HP sensor		AR-F13
AS	Alignment tray sensor		AR-F13
ATM	ADU transport motor	Drives the paper transport section in ADU.	AR-D19N
ATRC	ADU transport clutch	Controls ON/OFF of the transport roller in ADU.	AR-D19N
BDD	Door open detection 1	Detects upper door open.	AR-RB1
BDD2	Door open detection 2	Detects left door open.	AR-RB1
BES	Tray paper sensor		AR-F13
BGSOL	Gate solenoid	Switches straight or reverse paper exit.	AR-RB1
BIM	Paper entry motor	Transports paper in the paper entry section.	AR-RB1
BLUD	Belt lift-up upper limit detection	Detects if the transfer belt is lifted up or down.	AR-C170M
BLUM	Belt lift-up motor	Lifts the transfer belt unit.	AR-C170M
BPFD	Full sensor	Detects paper full on the tray.	AR-RB1
BPOD	Paper exit sensor	Detects paper exit.	AR-RB1
BPPD1	Transport sensor 1	Detects paper transport.	AR-RB1
BPPD2	Transport sensor 2	Detects paper transport.	AR-RB1
BPRD	Reverse section sensor	Detects paper presence in the reverse section.	AR-RB1
BRM	Upper reverse motor	Transports paper in the upper section.	AR-RB1
BTM	Transport belt motor	Drives the transfer belt.	AR-C170M
BTM	Lower reverse motor	Transports paper in the lower section.	AR-RB1
BTNF	Belt waste toner detection	Detects belt waste toner full.	AR-C170M
C1SS1	1 cassette paper size detection 1	Detects the paper size which is set by the paper size set block.	AR-C170M
C1SS2	1 cassette paper size detection 2	Detects the paper size which is set by the paper size set block.	AR-C170M
C1SS3	1 cassette paper size detection 3	Detects the paper size which is set by the paper size set block.	AR-C170M
C1SS4	1 cassette paper size detection 4	Detects the paper size which is set by the paper size set block.	AR-C170M
CALS	Calibration plate open/close solenoid	Switches image density sensors.	AR-C170M
COVER	Open/close sensor	Detects open/close of the paper feed unit.	AR-C170M (RSPF)
COVER OPEN	Book sensor	Detects floating of the RSPF.	AR-C170M (RSPF)
CPFC1	Paper feed clutch	Transmits the paper feed motor power to each transport roller. (Controls ON/OFF.)	AR-C170M
DCSPSx	Paper remaining quantity sensor	Detects the remaining quantity of paper.	AR-D17N/ AR-D18N
DCSSx	Paper size sensor	Detects the paper size.	AR-D17N/ AR-D18N/ AR-D19N
DDOPD	Door open sensor	Detects opening of the right door.	AR-D17N/ AR-D18N
DH	Dehumidifier heater	Dehumidifier heater for the machine cassette.	AR-C170M
DH	Dehumidifier heater 1	Dehumidifies the scanner section.	AR-C170M
DH	Dehumidifier heater 2	Dehumidifies the lens section.	AR-C170M
DHSW	Dehumidifier heater switch	Turns ON/OFF the power line of the dehumidifier heaters provided in the scanner (reading) section and the paper feed section.	AR-C170M
DLMx	Lift motor	Drives the lift plate.	AR-D17N/ AR-D18N/ AR-D19N
DLUDx	Paper upper limit sensor	Detects the paper upper limit position.	AR-D17N/ AR-D18N/ AR-D19N
DM	Paper feed drive motor	Drives the paper feed section and the paper transport section.	AR-D17N/ AR-D18N/ AR-D19N
DM_C	Drum motor (C)	Drives the Cyan photoconductor unit.	AR-C170M
DM_K	Drum motor (K)	Drives the Black photoconductor unit.	AR-C170M
DM_M	Drum motor (M)	Drives the Magenta photoconductor unit.	AR-C170M

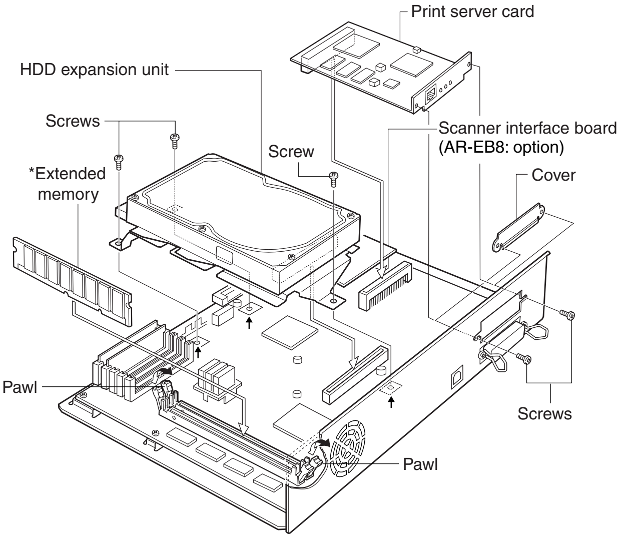
Signal name	Name	Function/Operation	Section
DM_Y	Drum motor (Y)	Drives the Yellow photoconductor unit.	AR-C170M
DPEDx	Paper empty sensor	Detects paper presence on the paper tray.	AR-D17N/ AR-D18N/ AR-D19N
DPFCx	Paper feed clutch	Controls ON/OFF of the paper feed roller.	AR-D17N/ AR-D18N/ AR-D19N
DPFSx	Pickup solenoid	Presses the paper pickup roller onto paper.	AR-D17N/ AR-D18N/ AR-D19N
DPPD1	Paper transport sensor 1	Detects paper transport.	AR-D17N/ AR-D18N/ AR-D19N
DPPD2	Paper transport sensor 2	Detects paper transport.	AR-D17N/ AR-D18N
DPPD3	Paper transport sensor 3	Detects paper transport.	AR-D17N/ AR-D18N
DSWF	Front door open detection	Detects opening of the front door.	AR-C170M
DSWL	Paper exit door open detection	Detects opening of the paper exit door.	AR-C170M
DSWR	Paper feed door open detection	Detects opening of the paper feed door.	AR-C170M
DUSTPTR	Punch dust full sensor	Detects punch dust full.	AR-F13
DTRC	Transport clutch	Controls ON/OFF of the transport roller.	AR-D17N/ AR-D18N/ AR-D19N
ES	Entry port sensor		AR-F13
FAM	Bundle exit sensor		AR-F13
FDS	Front door sensor		AR-F13
FDSW	Front door switch		AR-F13
FE	Bookbinding clock sensor		AR-F13
FES	Bookbinding paper senor		AR-F13
FFJM	Alignment motor (F)		AR-F13
FFM	Transport motor		AR-F13
FFSM	Stapler/Folding motor staple operation/ Paper folding operation		AR-F13
FHPS	Bookbinding HP sensor		AR-F13
FJHPS	Alignment HP sensor		AR-F13
FLM	Shift motor		AR-F13
FPM	Paddle motor oscillation guide drive, discharge to offset tray		AR-F13
FPNM	Punch motor		AR-F13
FPS	Bookbinding position sensor		AR-F13
FPSM	Puncher side registration motor		AR-F13
FRHPS	Bookbinding roller HP sensor		AR-F13
FRJM	Alignment motor (R)		AR-F13
FSM	Slide motor staple unit shift		AR-F13
FUSM	Fusing drive motor	Drives the fusing unit.	AR-C170M
GSS	Face up/down switch gate solenoid	Drives the face-up/down switch gate.	AR-C170M
HLTS1	Upper heat roller thermostat	Detects an abnormally high temperature to turn off the heater lamp.	AR-C170M
HLTS2	Lower heat roller thermostat	Detects an abnormally high temperature to turn off the heater lamp.	AR-C170M
HPOS	Offset home position sensor	Detects the offset home position.	AR-C170M
HUD	Humidity sensor	Detects the humidity.	AR-C170M
JS	Joint switch		AR-F13
L1	Document length detection SW (Short)	Detects the document length on the tray.	AR-C170M (RSPF)
L2	Document length detection SW (Long)	Detects the document length on the tray.	AR-C170M (RSPF)
LE	Lift lock sensor		AR-F13
LEDONx	Paper size sensor	Detects the paper size.	AR-F13
LLLS	Lift lower limit sensor		AR-F13
LUD1	1 cassette lift-up upper limit detection	Detects the paper upper limit position.	AR-C170M
LUM1	1 cassette lift-up motor	Drives the lift plate.	AR-C170M
MHPS	Mirror home position sensor	Detects the scanner home position.	AR-C170M
MPED	Manual feed paper empty sensor	Detects paper presence on the paper tray.	AR-C170M

Signal name	Name	Function/Operation	Section
MPFC	Manual paper feed clutch	Controls ON/OFF of the paper feed roller. Presses the paper pickup roller onto paper.	AR-C170M
MPLD1	Manual paper length detection 1	Detects the paper length.	AR-C170M
MPLD2	Manual paper length detection 2	Detects the paper length.	AR-C170M
MPWS	Manual paper width detection	Detects the paper width.	AR-C170M
MSW	Main switch	Turns ON/OFF the main power.	AR-C170M
MTOP1	Manual tray pull-out detection 1	Detects the paper tray position.	AR-C170M
MTOP2	Manual tray pull-out detection 2	Detects the paper tray position.	AR-C170M
MTRC	Manual feed drive clutch	Transmits drive power to the manual paper feed unit.	AR-C170M
OBHPS	Paper exit belt HP sensor		AR-F13
OCSW	O/G open sensor	Detects opening of the document cover. (Generates the document size detection timing signal.)	AR-C170M
OSM	Offset motor (Slide motor)	Drives the paper offset.	AR-C170M
PAPER	Paper entry sensor	Detects presence of a document.	AR-C170M (RSPF)
PCFM	Process cooling fan motor	Exhaust and cools the process section.	AR-C170M
PCS_C	Color toner concentration (process control) sensor	Detects the toner patch density (color toner) in image density correction.	AR-C170M
PE	Punch motor encoder		AR-F13
PED1	1 cassette paper empty detection	Detects paper presence on the paper tray.	AR-C170M
PFD1	1 cassette paper feed detection	Detects paper delivery from No. 1 paper tray.	AR-C170M
PFM	Paper feed motor	Drives the paper feed section and the paper transport section.	AR-C170M
PHPS	Paddle HP sensor		AR-F13
PO	Paper exit sensor	Detects presence of a document.	AR-C170M (RSPF)
POD1	Machine paper exit sensor 1	Detects discharged paper.	AR-C170M
POD2	Machine paper exit sensor 2	Detects discharged paper.	AR-C170M
PPD1	No. 1 paper transport sensor	Detects paper in front of the resist roller.	AR-C170M
PPD2	PS front sensor	Detects paper in front of PS.	AR-C170M
PSFM	Power UN cooling fan motor	Cools the power unit.	AR-C170M
PSHPS	Punch side registration home position		AR-F13
PSM	PS motor	Drives the resist roller and controls ON/OFF.	AR-C170M
PUNCH	Punch home position		AR-F13
PWMFAN_ICU	Printer controller cooling fan motor	Cools the printer controller.	AR-C170M
RJHPS	Alignment HP sensor R		AR-F13
SHPS	Slide HP sensor		AR-F13
SLS	Paper surface sensor		AR-F13
SM	Scanner motor	Drives the scanner unit.	AR-C170M
SPS	Staple sensor	Detects staple empty.	AR-F13
SS	Staple cartridge sensor	Detects installation of a staple cartridge.	AR-F13
SSS	Stapler safety switch		AR-F13
STHPS	Stapler HP sensor		AR-F13
TCS	Upper cover sensor		AR-F13
TES_C	Toner empty sensor (C)	Detects toner empty (C).	AR-C170M
TES_K	Toner empty sensor (K)	Detects toner empty (K).	AR-C170M
TES_M	Toner empty sensor (M)	Detects toner empty (M).	AR-C170M
TES_Y	Toner empty sensor (Y)	Detects toner empty (Y).	AR-C170M
TFD	Face-up paper exit tray full detection	Detects face-up paper exit tray full.	AR-C170M
TFD2	Paper exit tray full detection	Detects face-down paper exit tray full.	AR-C170M
THSD	Lower heat roller thermistor	Detects the temperature on the heat roller surface.	AR-C170M
THSU	Upper heat roller thermistor	Detects the temperature on the heat roller surface.	AR-C170M
TRC	PS front clutch	Transmits the paper feed motor power to the manual transport roller. (Controls ON/OFF.)	AR-C170M
ULS	Lift upper limit sensor		AR-F13
VFMP	Exhaust fan motor 1	Exhaust and cools the fusing section.	AR-C170M
VFMS	Exhaust fan motor 2	Exhaust and cools the fusing section.	AR-C170M
W0	Document set sensor	Detects presence of a document.	AR-C170M (RSPF)
W1	Document width sensor (A4R, LTR, A5)	Detects the document width on the tray.	AR-C170M (RSPF)
W2	Document width sensor (B4, B5)	Detects the document width on the tray.	AR-C170M (RSPF)
W3	Document width sensor (WLTR, A5R, A4, LT)	Detects the document width on the tray.	AR-C170M (RSPF)

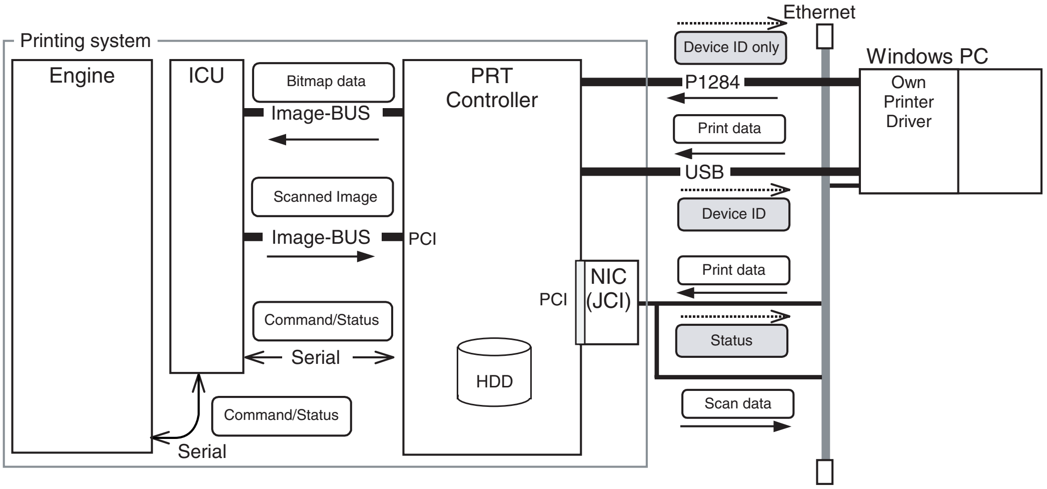
[14] PRINTER CONTROLLER SECTION

1. System configuration

A. Main unit


Print server card
HDD expansion unit
Screws
Screw
Scanner interface board
(AR-EB8: option)
*Extended
memory
Cover
Pawl
Screws
Pawl

B. Basic composition


Printing system
Engine
ICU
Bitmap data
Image-BUS
Scanned Image
Image-BUS
Command/Status
Serial
Command/Status
Serial
PRT
Controller
PCI
PCI
HDD
NIC
(JCI)
Ethernet
Device ID only
P1284
Print data
USB
Device ID
Print data
Status
Scan data
Windows PC
Own
Printer
Driver

C. Accessory

- Operation Manual
- Color balance adjustment chart
- CD-ROM (Printer utility software)
- CD-ROM (User software)

(1) Software CD-ROM

This CD-ROM contains a wizard-type installer for installation of the following utilities, and online manuals.

- **PCL5c Printer Driver:**

  The printer driver that is required for use of this product.

- **PCL Display Font:**

  PCL display fonts are fonts used in the computer screen. PCL display fonts are included that correspond to the resident fonts in the machine.

- **Printer Administration Utility:**

  When using the printer in a network environment, this administration utility makes it possible to configure printer settings and monitor the printer from a computer. (This utility is for use by system administrators.)

- **Printer Status Monitor:**

  When using the printer in a network environment, this provides messages and displays that allow you to monitor the status of the printer.

- **Please read before using (Readme):**

  This contains information on the contents of the "User Software" CD-ROM, how to use the utilities, how to view the online manuals, and limitations.

- **Print Server Card Quick Setup:**

  This is a wizard-type utility for Windows 95, Windows 98, Windows Me, Windows NT 4.0, Windows 2000, and Windows XP that allows you to conveniently configure the print server.

- **Print Server Card Standard Setup:**

  This installs and launches "NICManager", which enables administration and configuration of advanced print server settings.

- **SC-Print2000:**

  This installs software for direct printing from Windows 95/98/Me to the machine. LPR (only for this machine) or IPP can be selected.

- **Online Manual:**

  Manuals in PDF format that are viewed using Adobe Acrobat Reader.

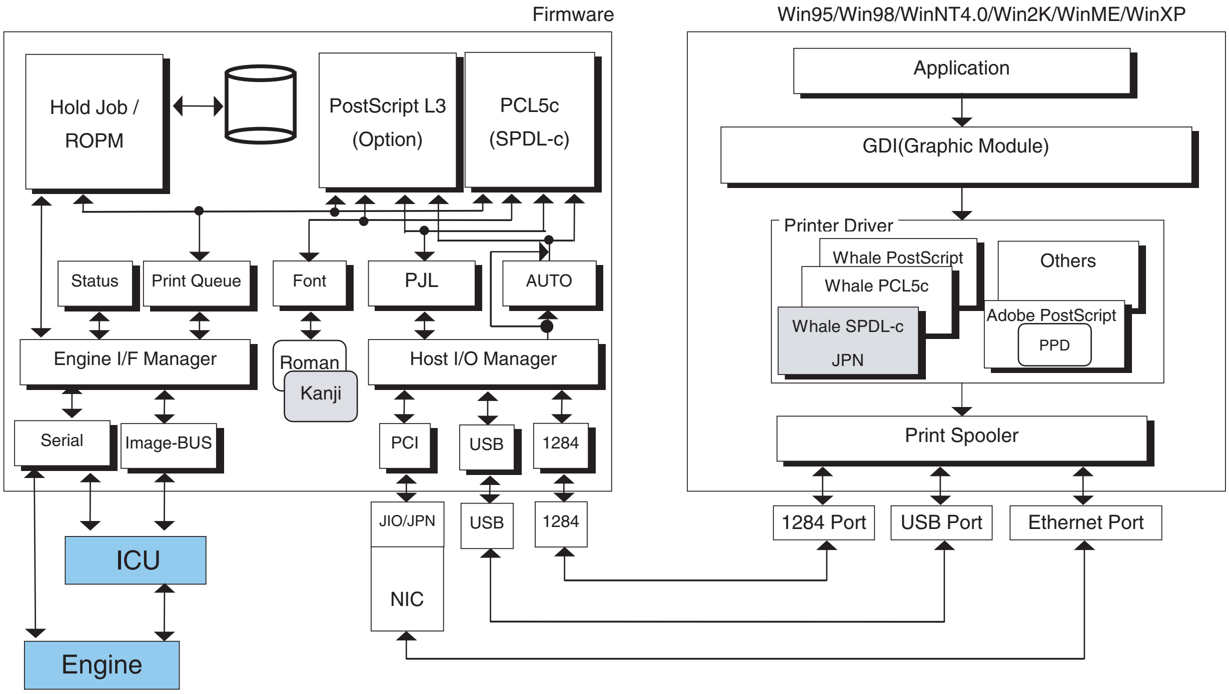
D. Options

- AR-EB8 scanner interface board
- AR-PK4/PS3 expansion kit
- Expansion memory (Recommendation)

Manufacture	Capacity	DIMM model
SHARP	256MB	AR-SM5

∗ For commercially available parts, refer to the separate table (See page 2-3).

E. Software, firmware diagram


Firmware
Win95/Win98/WinNT4.0/Win2K/WinME/WinXP
Hold Job / ROPM
PostScript L3 (Option)
PCL5c (SPDL-c)
Status
Print Queue
Font
PJL
AUTO
Engine I/F Manager
Roman
Kanji
Host I/O Manager
Serial
Image-BUS
PCI
USB
1284
JIO/JPN
NIC
USB
1284
ICU
Engine
Application
GDI(Graphic Module)
Printer Driver
Whale PostScript
Whale PCL5c
Whale SPDL-c
JPN
Others
Adobe PostScript
PPD
Print Spooler
1284 Port
USB Port
Ethernet Port

2. Specifications

(1) Functional specifications

Item		Content
Platform		IBM PC/AT (Include compatible machine)
Support OS	PCL	Windows 95/98/Me Windows NT4.0/Windows 2000/ Windows XP
	WHQL	Printer driver certification
Support PDL		PCL5c (standard) and PS3 emulation (Optional)
Resident font	For PCL5c	80 fonts
	For PS3	136 fonts
Screen font		N/A
Support channel		IEEE1284 parallel port (ECP compatible) PSERVER/RPRINT NETWARE LPR/LPD FTP Net BEUI AppleTalk IPP (Ver.1.0) USB (1 port)
Protocol		TCP/IP, IPX/SPX, NetBEUI
Interface		IEEE1284 parallel port, USB1.1, 10BASE-T/100BASE-TX
IEEE parallel port		Print data received through IEEE1284 parallel port Nibble mode (PnP support), ECP support
PSERVER/RPRINT NETWARE		PSERVER/RPRINT mode can be used under the Net Ware environment.
LPR/LPD		UNIX LPR/LPD command compatible
IPP		IPP Ver.1.0 compatible
FTP		Provides the function to print the data received via the embedded FTP server
Net BEUI		Microsoft NetBEUI compatible
USB		USB1.1 support PnP support
IEEE1394		N/A
Blue Tooth		N/A

(2) Printer driver functionality

Function		PCL5-c
General	Copies	1 – 999
	Collate	Collate/Uncollate
	Orientation	Portrait/Landscape
	Rotate 180 degrees	On/Off
	Document Style (Duplex)	1-Sided, 2-Sided (Book/Tablet), Pamphlet Style
	Pamphlet Style (Booklet)	[Tiled Pamphlet] Invoice on Letter Letter on Ledger A5 on A4, A4 on A3, B5 on B4, 16K on 8K [2-Up Pamphlet] Letter on Letter Ledger on Ledger A4 on A4, A3 on A3, B4 on B4, 16K on 16K, 8K on 8K
	Face up/down	Yes (Automatic)
	Binding Edge	Left, Right, Top
	Margin Shift	10 mm (0.4 inch) *1, 20 mm (0.8 inch)*1, 30 mm (1.2 inch) *1
	N-Up Printing	1-Up, 2-Up, 4-Up, 6-Up, 8-Up
	N-up Border	On/Off
	Reverse Order	Yes (Automatic)
	Paper Size	A3 Wide/12x18 *1, A3, A4, A5, A6, B4, B5, Ledger, Letter, Legal, Executive, Invoice, Foolscap, 8K, 16K, DL, C5, COM10, Monarch, Japanese Post Card
Paper Input	Custom Paper	Yes
	Paper Type	Auto Select, Plain, Letter Head, Pre-Printed, Pre-Punched, Recycled, Color, Heavy Paper-1, Heavy Paper-2, Transparency, Envelope, Japanese Post Card
	Paper Source (Source Selection)	Automatic, Tray 1, Tray 2, Tray 3, Tray 4, LCT, Bypass Tray
	Different Paper	On/Off 1-Sided/2-Sided
	Transparency Inserts	No/Yes-Blank
	Output	Standard / 20 Bin Sorter • Center Tray • Left Tray Saddle Stitch Finisher • Center Tray • Offset Tray • Saddle Stitch Tray
Paper Output	Staple	Saddle Stitch Finisher • No Staple • 1 position • 2 positions • Center 2 positions
	Shifter (Offset)	On/Off
	Punch	On/Off
	Resolution Settings	300 dpi/600 dpi
Graphics	Graphics Mode	Raster/Vector
	Font Source	Download Fonts, Resident Font
Font	Font Settings	Download as TrueType, Download as bitmap font, Print as graphics
	Font Substitution	N/A

Function		PCL5-c
Job Control	Normal Print	Yes
	Hold After Print	Yes
	Hold Before Print	Yes
	Sample Print	Yes
	PIN	Yes
	Account Control	Yes
Others	Fit to Page	On/Off
	Overlays	Yes
	Watermarks	Yes
	Page Protection	On/Off
	Save User Settings	Yes
	Auto Configuration	Yes
	Update Tray Status	Yes
	Printer status check at the time of print	Yes
	PS Pass-through	N/A
PS specific function	Job Compression	N/A
	Bitmap Compression	N/A
Color Settings	Color Mode	Automatic, Color, Grayscale
	Print Priority	Quality, Speed
	Original Type	Standard, Photos, Graphics, Drawing (Thin Line), Web Pages, Custom
	Color Rendering	CMM Off, Perceptual Match (Photo), Colorimetric Match, Saturation Match, SHARP Color, Perceptual Match (Web)
	UCR Selection	Low Black, Standard, High Black
	Black Overprint	On/Off
	Screening	Automatic, Photo, Text/Graphics
	Pure Black Text	On/Off
	All Text to Black	On/Off
	Color Adjustment	Color Balance, Image
	Pantone	N/A
	Gamma adjustment	N/A
	Ink simulation	N/A
	Color Profile Support	N/A

*1: When OS is set as Inch system: displayed as “12 x 18”.

[Combination with Status-monitor]

Showing of Status, Job End Notification (NJR v2.0), Auto Configuration, Get Tray Status, Printing start notification * It means that the driver sends notification of print start to Smon.

- ∗ Heavy Paper-1 is 106 – 200g/m^2 (28 + lbs – 54 lbs) paper and Heavy Paper-2 is 201 – 300g/m^2. (54+lbs – 80 lbs)
- ∗ The number of selectable paper cassettes varies with model of paper stand installed.

Job contention

a) If the printer is kept waiting, the engine keep processing the job as far as the memory has space.

When the memory has become full, the process is suspended.

b) Even if the memory has space, the engine does not process next job. But the data reception is available.

(3) Memory limitation matrix

Printer specifications	Printer controller PWB		Combination	Standard	Expansion-1	Expansion-2	Expansion-3
			Standard (Onboard)	128MB	128MB	128MB	128MB
			Expansion memory (Slot-1)	—	128MB	256MB	256MB
			Expansion memory (Slot-2)	—	—	—	256MB
			Total memory capacity	128MB	256MB	384MB	640MB
Print	4-bit (Image quality mode)	Single face	to A4	×	❍	❍	❍
			B4, A3	×	❍	❍	❍
		Duplex	to A4	×	❍	❍	❍
			B4, A3	×	❍	❍	❍
	1-bit (Image quality mode)	Single face	to A4	❍	❍	❍	❍
			B4, A3	❍	❍	❍	❍
		Duplex	to A4	❍	❍	❍	❍
			B4, A3	❍	❍	❍	❍
	With PS3 Expansion kit.			×	×	×	❍

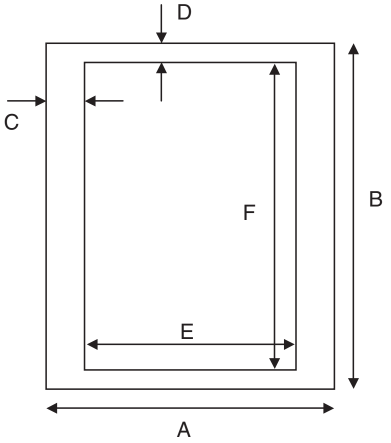
×: 4-bit print disabled with the standard memory. (No selection allowed in the driver menu.)

❍: Some data cannot be printed.

∗ Optional PS3 Expansion kit needs 256MB x 2 (512MB) memory.

(4) Print area

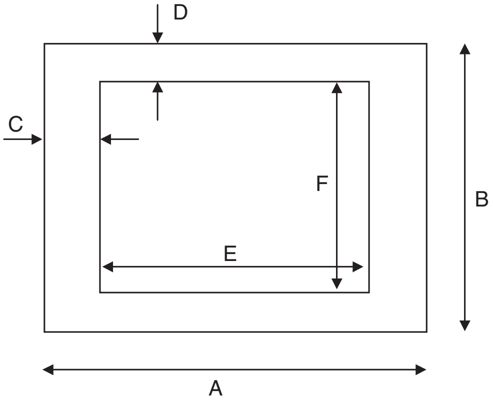
a. Image area, void area (Portrait)



	A	B	C	D	E	F
A3 Wide	3600	5400	36	50	3528	5300
A3	3507	4960	50	50	3407	4860
A4	2480	3507	50	50	2380	3407
A5	1748	2480	50	50	1648	2380
A6	1240	1748	50	50	1140	1648
B4	3035	4299	50	50	2935	4199
B5	2149	3035	50	50	2049	2935
Ledger	3300	5100	50	50	3200	5000
Letter	2550	3300	50	50	2450	3200
Legal	2550	4200	50	50	2450	4100
Executive	2175	3150	50	50	2075	3050
Invoice	1650	2550	50	50	1550	2450
Foolscap	2550	3900	50	50	2450	3800
8K	3189	4606	50	50	3089	4506
16K	2303	3189	50	50	2203	3089
DL	1299	2598	50	50	1193	2498
C5	1913	2704	50	50	1813	2604
COM10	1237	2850	50	50	1137	2750
Monarch	1162	2250	50	50	1062	2150
Japanese Post Card	1181	1748	50	50	1081	1648
JPN Chokei 3	1417	2775	50	50	1317	2675
JPN Chokei 2	1346	1913	50	50	1246	1813
JPN Chokei 4	1240	2775	50	50	1140	2675
Custom Paper	—	—	50	50	—	—

A: Physical Paper Size
B: Physical Paper Size
C: Printing offset
D: Printing offset
E: Printable Area
F: Printable Area

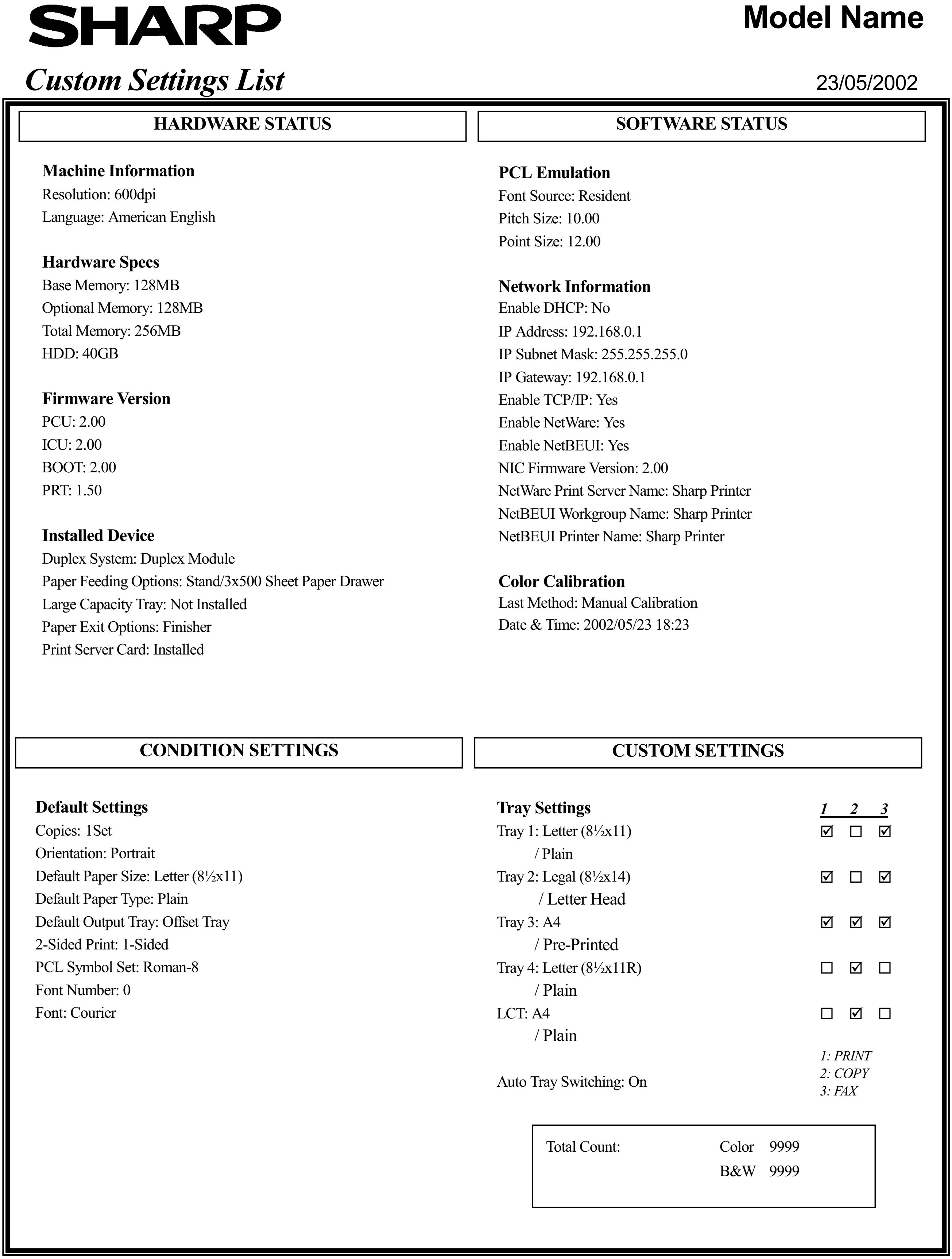
b. Image area, void area (Landscape)



	A	B	C	D	E	F
A3 Wide	5400	3600	50	36	5300	3528
A3	4960	3507	50	50	4860	3407
A4	3507	2480	50	50	3407	2380
A5	2480	1748	50	50	2380	1648
A6	1748	1240	50	50	1648	1140
B4	4299	3035	50	50	4199	2935
B5	3035	2149	50	50	2935	2049
Ledger	5100	3300	50	50	5000	3200
Letter	3300	2550	50	50	3200	2450
Legal	4200	2550	50	50	4100	2450
Executive	3150	2175	50	50	3050	2075
Invoice	2550	1650	50	50	2450	1550
Foolscap	3900	2550	50	50	3800	2450
8K	4606	3189	50	50	4506	3089
16K	3189	2303	50	50	3089	2203
DL	2598	1299	50	50	2498	1199
C5	2704	1913	50	50	2604	1813
COM10	2850	1237	50	50	2750	1137
Monarch	2250	1162	50	50	2150	1062
Japanese Post Card	1748	1181	50	50	1648	1081
JPN Chokei 3	2775	1417	50	50	2675	1317
JPN Chokei 2	1913	1346	50	50	1813	1246
JPN Chokei 4	2775	1240	50	50	2675	1140
Custom Paper	—	—	50	50	—	—

A: Physical Paper Size
B: Physical Paper Size
C: Printing offset
D: Printing offset
E: Printable Area
F: Printable Area

3. Configuration report (Test page)



SHARP

Model Name

Custom Settings List

23/05/2002

HARDWARE STATUS

Machine Information
Resolution: 600dpi
Language: American English

Hardware Specs
Base Memory: 128MB
Optional Memory: 128MB
Total Memory: 256MB
HDD: 40GB

Firmware Version
PCU: 2.00
ICU: 2.00
BOOT: 2.00
PRT: 1.50

Installed Device
Duplex System: Duplex Module
Paper Feeding Options: Stand/3x500 Sheet Paper Drawer
Large Capacity Tray: Not Installed
Paper Exit Options: Finisher
Print Server Card: Installed

SOFTWARE STATUS

PCL Emulation
Font Source: Resident
Pitch Size: 10.00
Point Size: 12.00

Network Information
Enable DHCP: No
IP Address: 192.168.0.1
IP Subnet Mask: 255.255.255.0
IP Gateway: 192.168.0.1
Enable TCP/IP: Yes
Enable NetWare: Yes
Enable NetBEUI: Yes
NIC Firmware Version: 2.00
NetWare Print Server Name: Sharp Printer
NetBEUI Workgroup Name: Sharp Printer
NetBEUI Printer Name: Sharp Printer

Color Calibration
Last Method: Manual Calibration
Date & Time: 2002/05/23 18:23

CONDITION SETTINGS

Default Settings
Copies: 1Set
Orientation: Portrait
Default Paper Size: Letter (8½x11)
Default Paper Type: Plain
Default Output Tray: Offset Tray
2-Sided Print: 1-Sided
PCL Symbol Set: Roman-8
Font Number: 0
Font: Courier

CUSTOM SETTINGS

Tray Settings	*1*	*2*	*3*
Tray 1: Letter (8½x11) / Plain	☑	☐	☑
Tray 2: Legal (8½x14) / Letter Head	☑	☐	☑
Tray 3: A4 / Pre-Printed	☑	☑	☑
Tray 4: Letter (8½x11R) / Plain	☐	☑	☐
LCT: A4 / Plain	☐	☑	☐

1: PRINT
2: COPY
3: FAX

Auto Tray Switching: On

Total Count:	Color	9999
	B&W	9999

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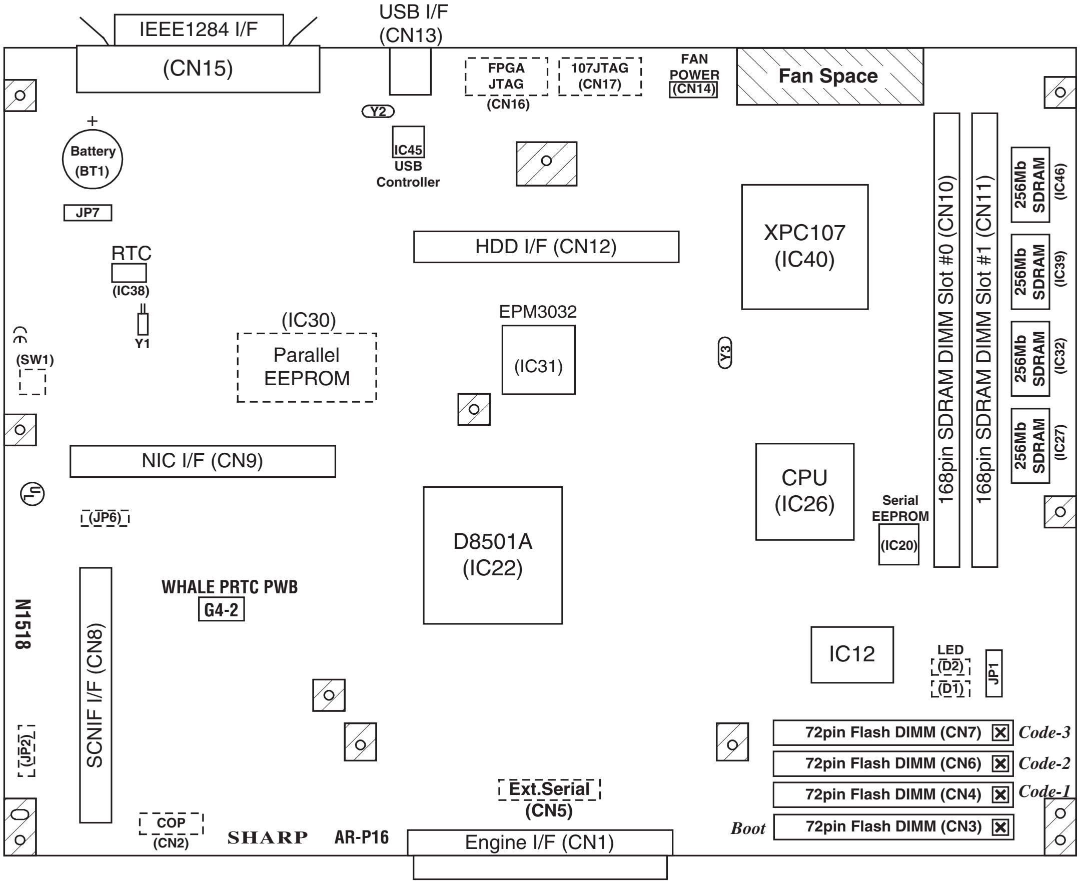
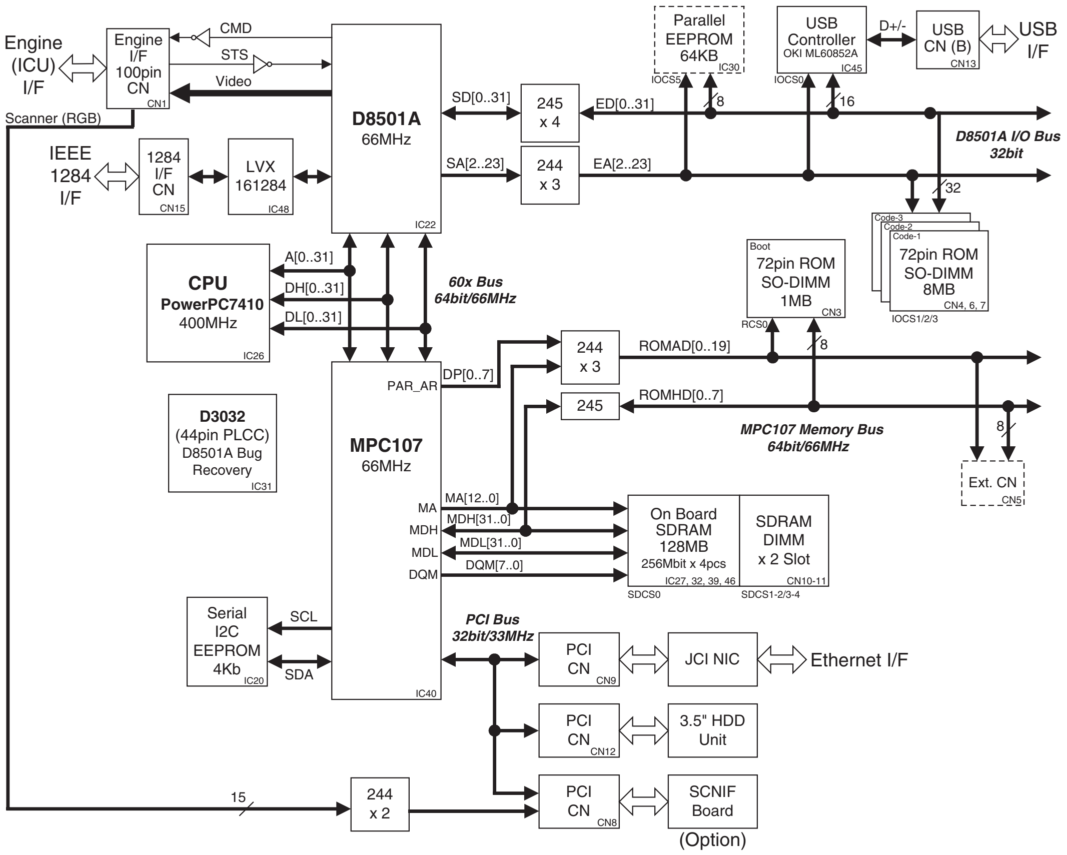
4. Hardware

A. Major device


IEEE1284 I/F
(CN15)
USB I/F
(CN13)
FPGA JTAG (CN16)
107JTAG (CN17)
FAN POWER (CN14)
Fan Space
Y2
IC45 USB Controller
Battery (BT1)
JP7
RTC (IC38)
Y1
HDD I/F (CN12)
XPC107 (IC40)
168pin SDRAM DIMM Slot #0 (CN10)
168pin SDRAM DIMM Slot #1 (CN11)
256Mb SDRAM (IC46)
256Mb SDRAM (IC39)
256Mb SDRAM (IC32)
256Mb SDRAM (IC27)
(SW1)
(IC30) Parallel EEPROM
EPM3032 (IC31)
Y3
NIC I/F (CN9)
(JP6)
CPU (IC26)
Serial EEPROM (IC20)
D8501A (IC22)
WHALE PRTC PWB
G4-2
N1518
SCNIF I/F (CN8)
IC12
LED (D2) (D1)
JP1
(JP2)
72pin Flash DIMM (CN7) Code-3
72pin Flash DIMM (CN6) Code-2
72pin Flash DIMM (CN4) Code-1
Boot 72pin Flash DIMM (CN3)
Ext.Serial (CN5)
COP (CN2)
SHARP
AR-P16
Engine I/F (CN1)

B. Block diagram


Engine (ICU) I/F
Engine I/F 100pin CN CN1
CMD
STS
Video
Scanner (RGB)
IEEE 1284 I/F
1284 I/F CN CN15
LVX 161284 IC48
D8501A 66MHz IC22
SD[0..31]
SA[2..23]
245 x 4
244 x 3
ED[0..31]
EA[2..23]
Parallel EEPROM 64KB IC30
IOCS5
8
USB Controller OKI ML60852A IC45
IOCS0
16
D+/-
USB CN (B) CN13
USB I/F
D8501A I/O Bus 32bit
32
Code-3 Code-2 Code-1
72pin ROM SO-DIMM 8MB CN4, 6, 7
IOCS1/2/3
Boot 72pin ROM SO-DIMM 1MB CN3
RCS0
CPU PowerPC7410 400MHz IC26
A[0..31]
DH[0..31]
DL[0..31]
60x Bus 64bit/66MHz
PAR_AR
DP[0..7]
244 x 3
245
ROMAD[0..19]
ROMHD[0..7]
8
MPC107 Memory Bus 64bit/66MHz
8
Ext. CN CN5
D3032 (44pin PLCC) D8501A Bug Recovery IC31
MPC107 66MHz
MA MDH MDL DQM
MA[12..0]
MDH[31..0]
MDL[31..0]
DQM[7..0]
On Board SDRAM 128MB 256Mbit x 4pcs IC27, 32, 39, 46
SDCS0
SDRAM DIMM x 2 Slot CN10-11
SDCS1-2/3-4
Serial I2C EEPROM 4Kb IC20
SCL
SDA
IC40
PCI Bus 32bit/33MHz
PCI CN CN9
JCI NIC
Ethernet I/F
PCI CN CN12
3.5" HDD Unit
PCI CN CN8
SCNIF Board
(Option)
15
244 x 2

C. Interface

a. USB I/F (CN13)

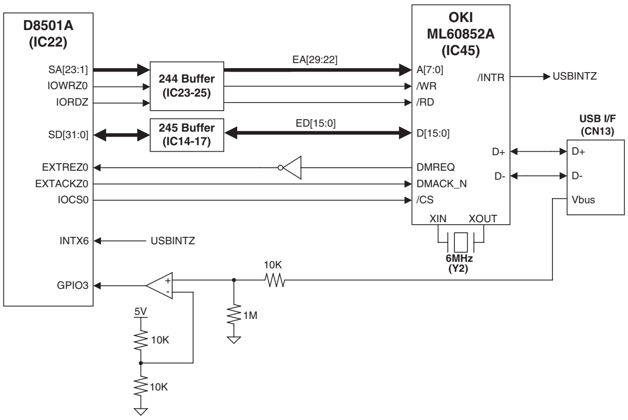
This connector is USB Type-B 4-pin connector.

USB I/F (CN13) Pin Assignment

Pin No	Signal
1	VCC
2	DATA -
3	DATA +
4	GND

OKI ML60852A is used as USB controller. The USB Controller device is connected with the 32-bit I/O Bus of D8501A, and IOCS0 is used. Moreover, a DMA controller uses DMAC Ch.0 in D8501A.

Spec	OKI ML60852A
USB Rev.	1.1
Transfer type	Control, Bulk, Interrupt, Isochronous
End Point	5 or 6
USB transceiver	Built-in
EP1 DMA	Supported
DMA Channel	2
Bus-powered devices	Supported
DMA Data Width	8 or 16
Intelligent SIE	Supported


D8501A
(IC22)
SA[23:1]
IOWRZ0
IORDZ
SD[31:0]
EXTREZ0
EXTACKZ0
IOCS0
INTX6
GPIO3
244 Buffer
(IC23-25)
245 Buffer
(IC14-17)
EA[29:22]
ED[15:0]
OKI
ML60852A
(IC45)
A[7:0]
/WR
/RD
D[15:0]
DMREQ
DMACK_N
/CS
/INTR
USBINTZ
D+
D-
XIN
XOUT
6MHz
(Y2)
USB I/F
(CN13)
D+
D-
Vbus
USBINTZ
10K
1M
5V
10K
10K

b. IEEE1284 I/F (CN15)

Built-in 1284 controller in D8501A is used, and 1284 interfaces are controlled.

D8501A internal 1284 Controller Specification

- Supports IEEE1284 Compatible mode, Nibble Mode, Forward/ Reverse ECP mode (without decompression)
- Internal 16 bytes transmit buffer and 16 bytes receive buffer supports.
- 2 channel DMA support (32 bit packed)
- Transfer data amount has to be multiple of 4-bytes.

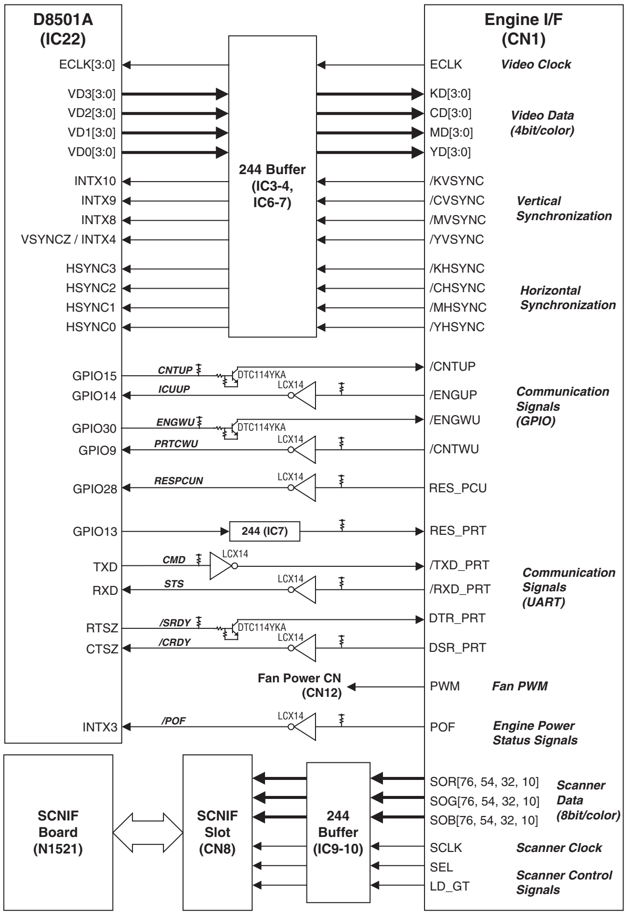
This connector is 36 pin Amphenol connector based on IEEE1284.

Pin Assignment

No.	Compatible	Nibble, Byte	ECP	No.	Compatible, Byte Nibble, ECP
1	Nstrobe	HostClk	HostClk	19	GND
2	D1	D1	D1	20	GND
3	D2	D2	D2	21	GND
4	D3	D3	D3	22	GND
5	D4	D4	D4	23	GND
6	D5	D5	D5	24	GND
7	D6	D6	D6	25	GND
8	D7	D7	D7	26	GND
9	D8	D8	D8	27	GND
10	Nack	PrtClk	PeriphClk	28	GND
11	Busy	PrtBusy	PriphAck	29	GND
12	Rerror	AckDatReq	nAckReverse	30	GND
13	Select	Xflag	Xflag	33	N.C
14	NautoFd	HostBusy	HostAck	34	N.C
15	N.C	N.C	N.C	35	N.C
16	GND	GND	GND		
17	FGND	FGND	FGND		
18	LogicHigh	LogicHigh	LogicHigh		
31	NInit	NInit	NrserveReqyest		
32	Nfault	NdataAvil	NperiphRequest		
36	Nselection	IEEE1284active	IEEE1284active		

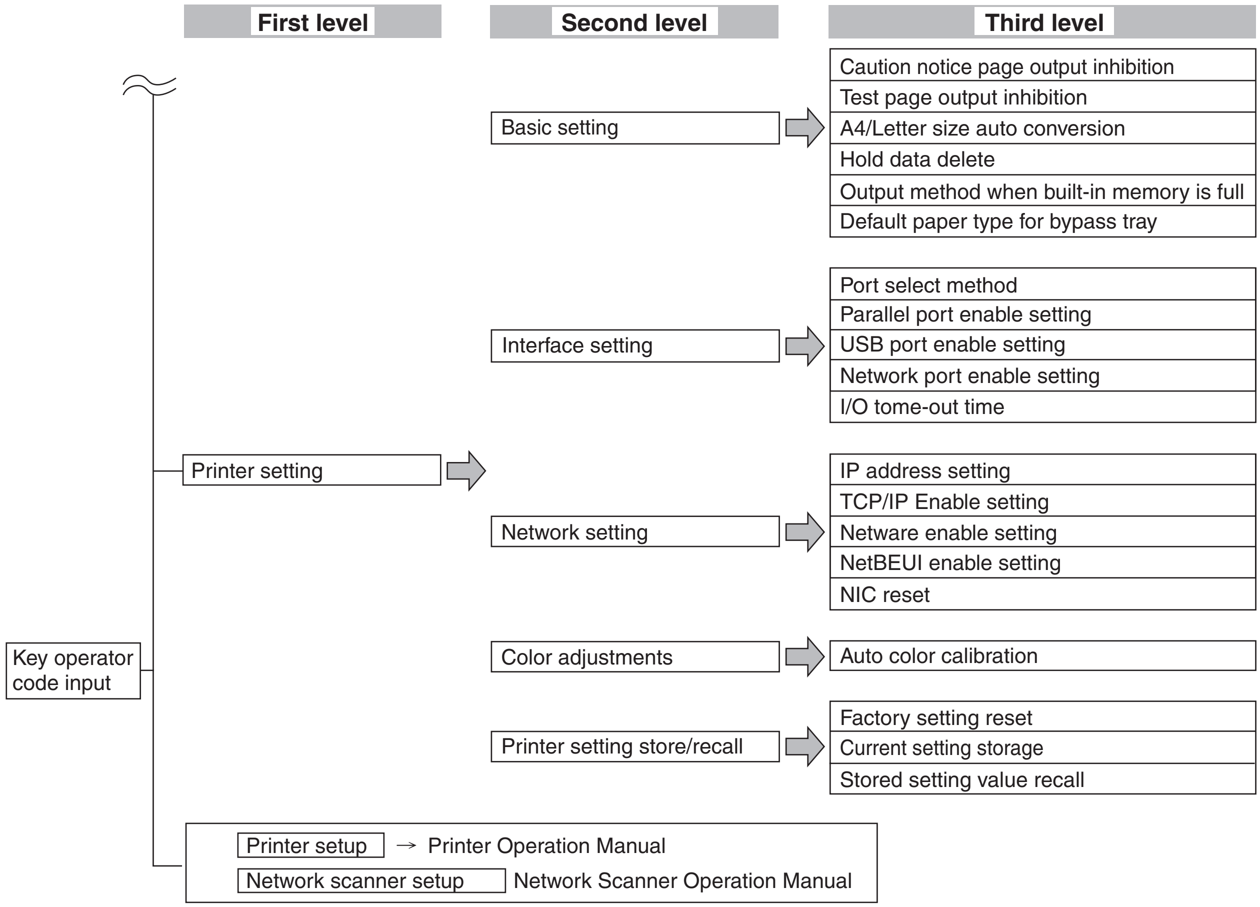
c. Engine I/F

Engine Interface is supported in PRTC (Alpha-5) board. There are a power supply line, Video-related signals, Scanner-related signals, and signals of communication relation with engine in this Engine Interface. Moreover, Video-related signals and communication-related signals are controlled by D8501A. Scanner-related signals are controlled by SCNIF ASIC on the SCNIF board via PCI I/F.


D8501A
(IC22)
ECLK[3:0]
VD3[3:0]
VD2[3:0]
VD1[3:0]
VD0[3:0]
INTX10
INTX9
INTX8
VSYNCZ / INTX4
HSYNC3
HSYNC2
HSYNC1
HSYNC0
244 Buffer
(IC3-4,
IC6-7)
GPIO15
GPIO14
GPIO30
GPIO9
GPIO28
GPIO13
TXD
RXD
RTSZ
CTSZ
INTX3
CNTUP
ICUUP
ENGWU
PRTCWU
RESPCUN
CMD
STS
/SRDY
/CRDY
/POF
DTC114YKA
LCX14
244 (IC7)
Fan Power CN
(CN12)
Engine I/F
(CN1)
ECLK
Video Clock
KD[3:0]
CD[3:0]
MD[3:0]
YD[3:0]
Video Data
(4bit/color)
/KVSYNC
/CVSYNC
/MVSYNC
/YVSYNC
Vertical
Synchronization
/KHSYNC
/CHSYNC
/MHSYNC
/YHSYNC
Horizontal
Synchronization
/CNTUP
/ENGUP
/ENGWU
/CNTWU
Communication
Signals
(GPIO)
RES_PCU
RES_PRT
/TXD_PRT
/RXD_PRT
DTR_PRT
DSR_PRT
Communication
Signals
(UART)
PWM
Fan PWM
POF
Engine Power
Status Signals
SCNIF
Board
(N1521)
SCNIF
Slot
(CN8)
244
Buffer
(IC9-10)
SOR[76, 54, 32, 10]
SOG[76, 54, 32, 10]
SOB[76, 54, 32, 10]
Scanner
Data
(8bit/color)
SCLK
Scanner Clock
SEL
LD_GT
Scanner Control
Signals

5. Setting

A. Key operator program


First level
Second level
Third level
Key operator code input
Printer setting
Basic setting
Caution notice page output inhibition
Test page output inhibition
A4/Letter size auto conversion
Hold data delete
Output method when built-in memory is full
Default paper type for bypass tray
Interface setting
Port select method
Parallel port enable setting
USB port enable setting
Network port enable setting
I/O tome-out time
Network setting
IP address setting
TCP/IP Enable setting
Netware enable setting
NetBEUI enable setting
NIC reset
Color adjustments
Auto color calibration
Printer setting store/recall
Factory setting reset
Current setting storage
Stored setting value recall
Printer setup → Printer Operation Manual
Network scanner setup Network Scanner Operation Manual

(1) Printer setting

a. Basic setting

Basic setting modifies or cancels factory settings of various printer functions according to the use conditions.

1) Caution notice page output inhibition

This program is set when inhibiting print of the caution notice page.

2) Test page output inhibition

Used to inhibit printing of the test page.

When this is set, the printer test page (Test page print) cannot be printed by the user setting.

3) A4/Letter size auto conversion

This setting allows printing on A4 size paper when letter size is requested but there is no letter size paper.

∗ Printing on letter size paper when there is no A4 size is not allowed.

4) Hold data delete

This program is used to delete all data manually from the hard disk.

5) Output method when built-in memory is full

When the built-in memory is full of printer data, further printing cannot be made. Therefore, the contents stored in the memory are printed. This program sets the print conditions. Factory setting is "1 set."

6) Default paper type for bypass tray

This program is used to set the default paper type for paper loaded in the bypass tray in printer mode. "NONE" (a default paper type is not selected), "PLAIN", "HEAVY PAPER", or "TRANSPARENCY" can be selected. If "HEAVY PAPER" is selected, select "HEAVY PAPER 1" or "HEAVY PAPER 2". If "TRANSPARENCY" is selected, select "SPEED MODE" or "QUALITY MODE".

The factory default setting is "NONE".

b. Interface setting

The interface setting is used to set data monitoring and control of data sent to the machine parallel port and network port.

1) Port select method

Used to select the parallel port and the network port of the machine.

Items to be set	Content of item
Changeover at job end	After completion of printing, the port is set to the auto selection.
Changeover after I/O time-out	When the time set with I/O time-out time (item below) is reached, the port is set to auto selection.

2) Parallel port enable setting

This program is used to set Enable/Disable of printing from the parallel port.

3) USB port enable setting

This program is used to set Enable/Disable of printing from the USB port.

4) Network port enable setting

This program is used to set Enable/Disable of printing from the network port.

5) I/O tome-out time

This program is used to interrupt connection of the port when print data are not sent for a certain time to the port which is in standby for print data reception, and used to set auto selection of port or to start the next print data in standby for printing.

I/O time-out item means the time interval between print data reception standby and I/O time-out.

c. Network setting

This setting is used to use the printer as a network printer. [Network setting] allows setting of the following items. After changing the items, terminate the key operator program and turn off the main switch. Then turn on the main switch again after a while to enable the setting.

1) IP address setting

Used to set the IP address of this machine when is it used under the network environment using the TCP/IP protocol. (IP address, IP net mask, IP gateway)

Factory setting is "IP address is automatically acquired (DHCP Enable)."

When using under the TCP/IP protocol network environment, [TCP/IP Enable] is set to Enable.

2) TCP/IP Enable setting

This setting is used when the machine is used under the TCP/IP protocol network environment.

3) Netware enable setting

This setting is used when the machine is used under the NetWare protocol network environment.

4) NetBEUI enable setting

This setting is used when the machine is used under the NetBEUI protocol network environment.

5) NIC reset

Used to reset all the setting items of NIC (Network Interface Card) to the factory setting.

Terminate the key operator program and turn off the main switch. Then turn on the main switch again after a while to enable the setting.

d. Color adjustments

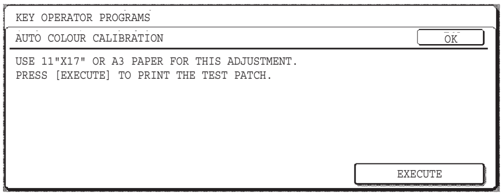
This program is used to automatically adjust the color tone of each color (cyan, magenta, yellow, and black). None of these adjustments affect black and white printing.

1) Auto color calibration

The auto color calibration program enables automatic color gradation correction when the color is off.

Note: The color gradation may not be sufficiently corrected after one correction cycle. If so, execute the program again.

When the [AUTO COLOUR CALIBRATION] key is touched, the following display will appear.

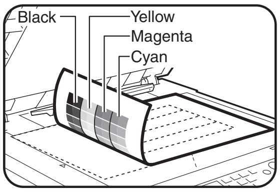


KEY OPERATOR PROGRAMS

AUTO COLOUR CALIBRATION

USE 11"X17" OR A3 PAPER FOR THIS ADJUSTMENT.
PRESS [EXECUTE] TO PRINT THE TEST PATCH.

After the [EXECUTE] key is touched and a test patch printed, a message appears asking you to begin automatic adjustment. Place the test patch on the document glass as shown below and touch the [EXECUTE] key.



Notes:

- Correct adjustment will not be possible if you use the test patch that is printed for "Auto color calibration" for the copy function or any other document. If you attempt to use the wrong test patch, you will return to the message screen that asks you to begin automatic adjustment. Be sure to place only the test patch printed out above on the document glass.
- Lay approximately five sheets of copy paper that are the same size as the test patch on top of the set test patch, and gently close the original cover.

When a message appears informing you that auto color calibration is completed, touch the [OK] key to end the procedure.

Note: Before using this program, make sure that the registration is correctly adjusted. If the registration is not correctly adjusted, perform [AUTO ADJUSTMENT] in "Registration adjustment".

e. Printer setting store/recall

This program is used to reset the environment setting and the key operator program printer setting to the default setting and to store the current setting contents. If the setting contents are changed, the stored contents can be recalled to reset the machine to the stored setting contents.

1) Factory setting reset

This program is used to reset the environment setting and the key operator program printer setting to the default setting. After execution of this program, terminate the key operator program and turn off the main switch. Then turn on the main switch again after a while to enable the setting.

2) Current setting storage

This program is used to store the environment setting and the key operator program printer setting in the memory. The stored contents are not deleted even the main switch is turned off. To recall the stored contents, use [Stored setting value recall].

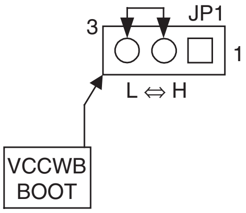
3) Stored setting value recall

This program is used to recall the setting contents stored with the program of [Current setting storage] and reset the machine to the recalled setting.

(2) Jumper Setting

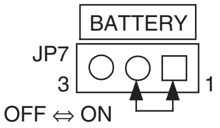
Configuration for 3-pin jumper is shown as follows.

a. Boot ROM Write Protect setting (JP1)



Boot ROM Write Protect	JP1	Factory Default
Normal	1-2 Short	
Write Protect	2-3 Short	←

b. Battery setting (JP7)

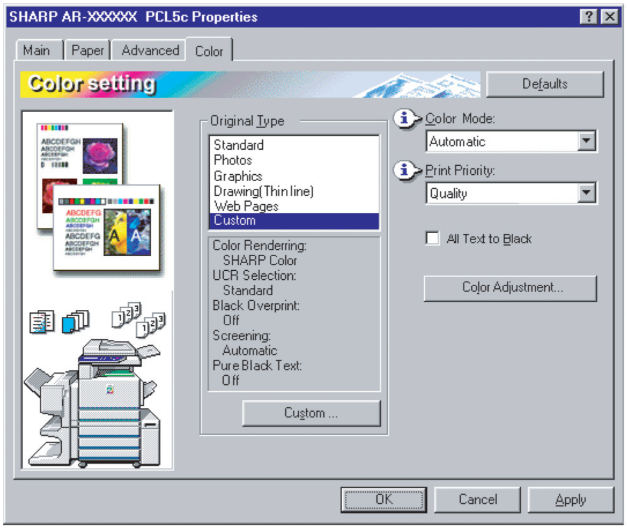


Battery	JP7	Factory Default
ON	1-2 Short	←
OFF	2-3 Short	

6. Operation

A. Printer driver setting and operation

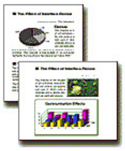
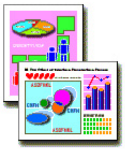
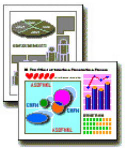
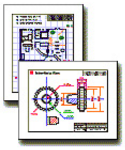
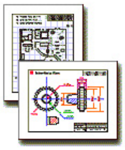
(1) Document mode and image process



Original Type
Standard
Photos
Graphics
Drawing(Thin line)
Web Pages
Custom

Color Rendering: SHARP Color
UCR Selection: Standard
Black Overprint: Off
Screening: Automatic
Pure Black Text: Off

Color Mode: Automatic
Print Priority: Quality
☐ All Text to Black

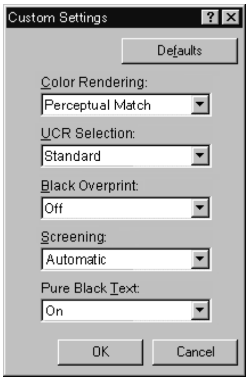
		Color Mode		
		Color	Gray Scale	Automatic
Original Type	Standard			
	Graphics			
	Photo			
	Drawing (Thin line)			
	Web Page			
	Custom			

Custom Setting dialog is automatically set with the Original Type as follows:

		Color Rendering	UCR Selection	Black Overprint	Screening	Pure Black Text
Original Type	Standard	SHARP Color	Standard	ON	Automatic	On
	Graphics	Saturation Match	High Black	On	Text/Graphics	Off
	Photo	Perceptual Match (Photo)	Low Black	Off	Photo	Off
	Drawing (Thin line)	Saturation Match	High Black	On	Automatic	On
	Web Page	Perceptual Match (Web)	Standard	Off	Automatic	On
	Custom	No Change	No Change	No Change	No Change	No Change

- When a user changes color dialog settings, "Original Type" is set Custom.
- When Original Type item is set to "Drawing (Thin line)", Screening item is set to "Automatic" on UI. However, in this case the drivers output "Drawing" mode as PJL.

(2) Custom Settings



Custom Settings

Color Rendering: Perceptual Match

UCR Selection: Standard

Black Overprint: Off

Screening: Automatic

Pure Black Text: On

a. Color Rendering

Color matching is set.

Setting value:

- **[CMM Off];** No color matching. UCR select is invalid.
- **[Perceptual Match (Photo)];** Used to print continuous gradation images (photo images, etc.).
  All colors (Colors within and outside printer color reproduction gamut) are equally color-mapped.
- **[Colorimetric Match];** Used to print in colors which are close to displayed colors.
  Colors which are close to displayed colors are reproduced. Colors outside the reproduction gamut are color-mapped by colorimetric match.
  Colors within printer color reproduction gamut are so color-mapped that the color difference from CRT is minimized when print. Colors outside printer color reproduction gamut are color-mapped by colorimetric match.
  UCR select is invalid.
- **[Saturation Match];** Used to print graphical presentation documents by saturation match.
  Colors within printer color reproduction gamut are so color-mapped that the color difference from CRT is minimized when print. Colors outside printer color reproduction gamut are color-mapped by saturation match.
- **[SHARP Color]*;** Used to print photo images and graphic images together.
  Colors are reproduced to express intermediate color reproduction gamut between Perceptual Match and Saturation Match.
  Color-mapped to have intermediate color reproduction gamut between Perceptual Match and Saturation Match.
- **[Perceptual Match (Web)];** Used to print Web page images.
  Color matching is performed so that the overall saturation of an image is reduced and the high-density gamut is widened than Perceptual mode.
  All colors (Colors within and outside printer color reproduction gamut) are equally color-mapped.

Note: This process is done by PJL output.

b. UCR Selection

The ratio to use black toner is set.

Setting value:

- **[Low Black];** To output gray tint of photo which is difficult to reproduce.
- **[Standard]* ;** For photo
- **[High Black];** For CAD and graphs

Restriction:

- If "Color Rendering" item is set to "Colorimetric Match" or "CMM OFF," this item is invalid.

Note: This process is done by PJL output.

c. Black Overprint

When the background is color, whether black characters are overprinted is set.

Setting value:

- [Off]*
- [On]

Note: This process is done by PJL output.

d. Screening

Color matching is set.

Setting value:

- **[Automatic]*;** Automatically checks type of each area of the image (photo or text/graphics), and output the image by changing halftone accoding to each area.
- **[Photo];** Outputs all areas by halftone for photo.
- **[Text/Graphics];** Ouputs all areas by halftone for text/grahics.

Note: This process is done by PJL output.

e. Pure Black Text

Select whether to print black text with only black toner.

Setting value:

- **[Off];** Print black text with CMYK toners.
- **[On]* ;** Print black text with only black toner.

(3) Installed RAM VS. Color Mode VS. Print Priority

Memory size: [128 MB RAM / 128 MB RAM]* [256 MB RAM / 256 MB RAM] [384 MB RAM / 384 MB RAM] [512 MB RAM / 512 MB RAM] [640 MB RAM / 640 MB RAM]

There are the following restrictions among Installed RAM, Color Mode, and Print Priority by the restriction of the printer side. As for these restrictions, the former set is preceded and the use of other competitive settings is prohibited. When each setting is restricted (grayout), the Information Icon is displayed to the left of each setting item. If clicking such icon, the following information is displayed to the type 1 dialog box.

Color Mode	Print Priority	Document Style	Installed Memory	
			128MB	256MB or more
Color/ Automatic	Quality	1-Sided	X	O
		2-Sided	X	O
	Speed	1-Sided	O	O
		2-Sided	O	O
Gray Scale	Quality	1-Sided	O	O
		2-Sided	O	O
	Speed	1-Sided	O	O
		2-Sided	O	O
Gray Scale	Quality	1-Sided	O	O
		2-Sided	O	O
	Speed	1-Sided	O	O
		2-Sided	O	O

When Installed Memory setting is 128MB:

- When the Color Mode item is set to Color/Automatic, the Print Priority item is fixed to Speed, and it is grayed out. (Default setting)
- When the Print Priority item is set Quality, the Color Mode item is fixed to Gray Scale, and it is grayed out.

The Alert contents to the Print Priority item:

“To use this feature, set ‘Installed RAM’ to ‘256 MB RAM’ or more (see Configuration tab), or set ‘Color Mode’ to ‘Gray Scale’ (see Color tab).”

The Alert contents to the Color Mode item:

“To use this feature, set ‘Installed RAM’ to ‘256 MB RAM’ or more (see Configuration tab), or set ‘Print Priority’ to ‘Speed’ (see Color tab).”

7. Firmware version up

A. Necessary items

1) Personal computer (PC)
2) Parallel cable
3) Printer program data file (xxx.blk)

B. Procedure

1) Use SIM 22-5 to check the current firmware version.
2) Connect the PC and the machine with the parallel cable.
3) Turn on the power.
4) Execute SIM 67-14. (Check that "PLEASE SEND DATA" is displayed.)
5) The download file (printer program) is downloaded. (xxx.blk)

(Note) Never turn off the power during downloading.

Boot the DOS prompt. → Check that the printer READY lamp lights up. → Type "> copy xxx.blk lpt1" on the DOS prompt.

The machine display shifts as follows. Check that "COMPLETED" is displayed at the end.

RECEIVING → ERASING → WRITING → VERIFYING → COMPLETED

6) Turn off/on the power to reboot.
7) Use SIM 22-5 to check the firmware version.
8) Use SIM 67-17 to clear the controller NVRAM.
9) After rebooting, try printing from the PC and check that printing is completed normally.
10) Execute the printer color balance adjustment.

8. Color balance adjustment

A. Outline

The printer color balance adjustment is used to manually adjust gradation of Cyan, Magenta, Yellow, and Black in each level of low, medium, and high density.

The color balance adjustment in the printer mode is generally performed by the user. However, a serviceman can perform this adjustment more accurately by use of the test chart for servicing.

B. Purpose

As the printer is used, ambient conditions and the depletion of consumables (the toner cartridge and drum cartridge) can gradually cause changes to occur in the four color components of color images, cyan, ma-genta, yellow, and black. This results in deviations in the color balance.

These deviations in the color balance occur gradually over a long period of time. Ambient conditions (tem-perature and humidity) and the number of times the printer is used can have a large effect on color devia-tion.

The printer has two color adjustment functions for the purpose of correcting deviations in the color balance.

These functions are executed from the key operator programs.

C. Execution conditions

Be sure to perform this adjustment when consumable part is replaced.

For execution of this adjustment, the print engine section must be in the normal condition. (All the adjustment items related to the print engine section must have been adjusted properly.)

D. Color balance adjustment mode

The printer has the following two color balance adjustment functions:

(1) Color balance adjustment

This function is used to adjust each of the density levels (low, mid, and high) of the four color components, cyan, magenta, yellow and black.

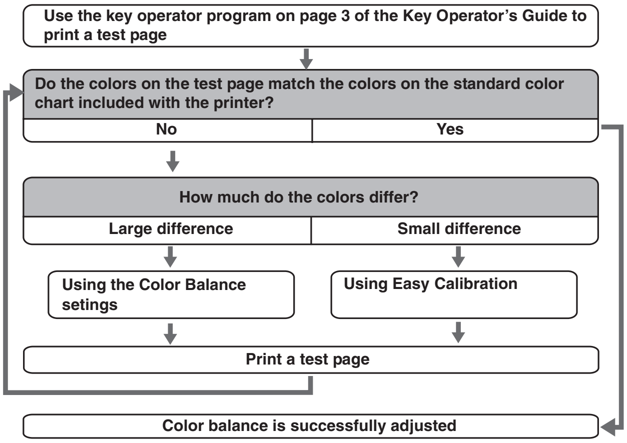
Use this mode when the color deviation is large.

(2) Easy calibration (Gray balance adjustment)

This mode is used for fine adjustment of the gray balance at the mid density level of the colors cyan, magenta, and yellow.

Use this mode to correct minor color deviations.

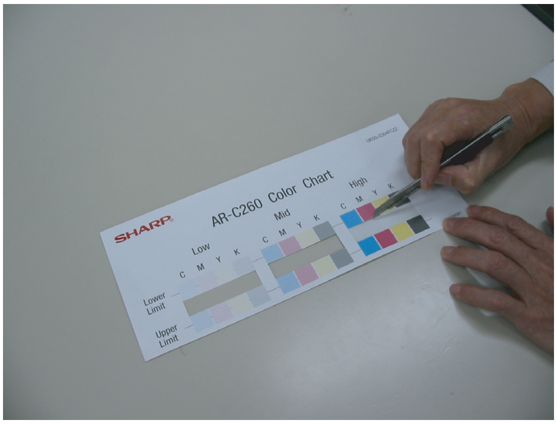
E. Color balance adjustment flow

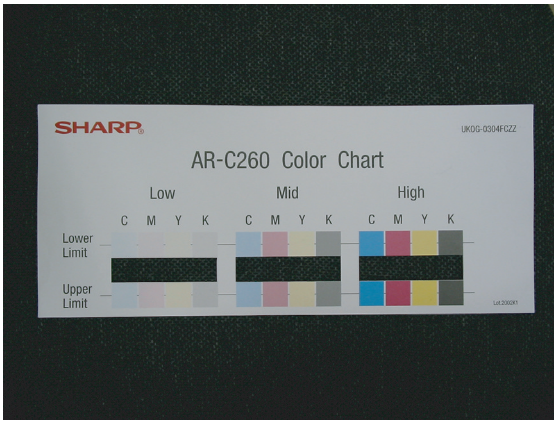

Use the key operator program on page 3 of the Key Operator's Guide to print a test page
Do the colors on the test page match the colors on the standard color chart included with the printer?
No
Yes
How much do the colors differ?
Large difference
Small difference
Using the Color Balance setings
Using Easy Calibration
Print a test page
Color balance is successfully adjusted

Test print: Used to check the current color balance and the gray level adjustment state. By executing this adjustment, the test page is printed.

(Preparation of the test chart)

Cut off the sections between two rows of the test pattern as shown below cutter.

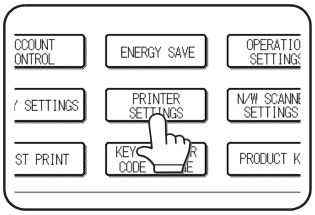

SHARP
AR-C260 Color Chart
Low
Mid
High
C M Y K
Lower Limit
Upper Limit


SHARP
UKOG-0304FCZZ
AR-C260 Color Chart
Low
Mid
High
C M Y K
C M Y K
C M Y K
Lower Limit
Upper Limit

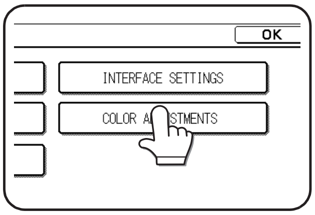
F. Adjustment details

(1) Color balance adjustment

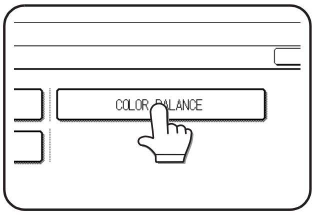
1) Enter the key operator program mode.
2) Select "Printer setting."


CCOUNT ONTROL
ENERGY SAVE
OPERATIO SETTINGS
/ SETTINGS
PRINTER SETTINGS
N/W SCANNE SETTINGS
ST PRINT
KEY CODE
PRODUCT K

3) Select "Color adjustments."

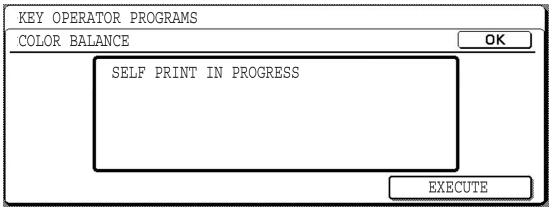

OK
INTERFACE SETTINGS
COLOR ADJUSTMENTS

4) Select "Color balance setting."


COLOR BALANCE

5) The display below is shown. Select A4 or 8.5" x 11" size paper, and press the EXECUTE key.

   The test pattern for adjustment is printed, and the adjustment menu is displayed.

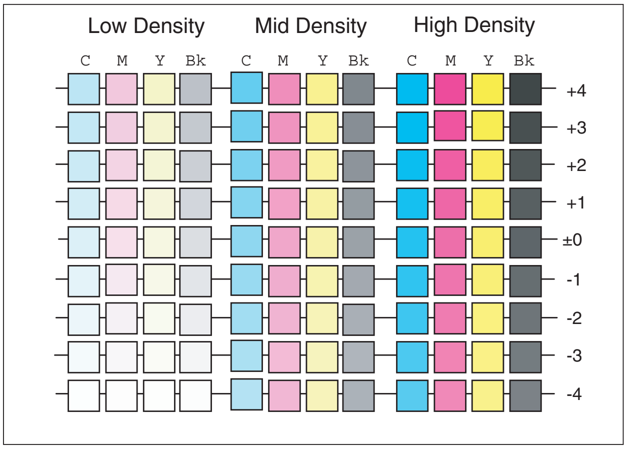


KEY OPERATOR PROGRAMS

COLOR BALANCE

SELF PRINT IN PROGRESS

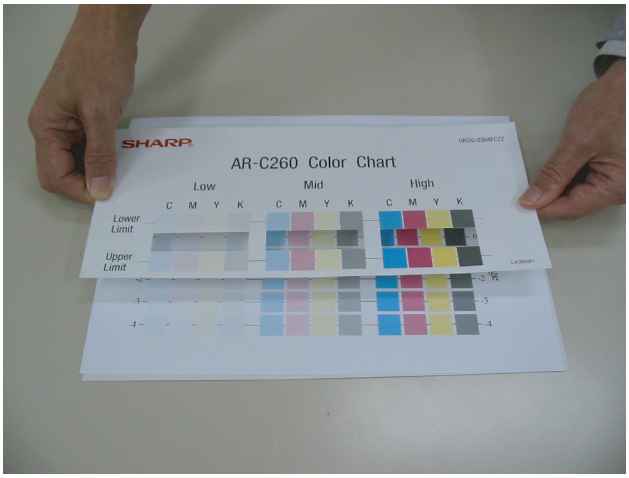
Test pattern

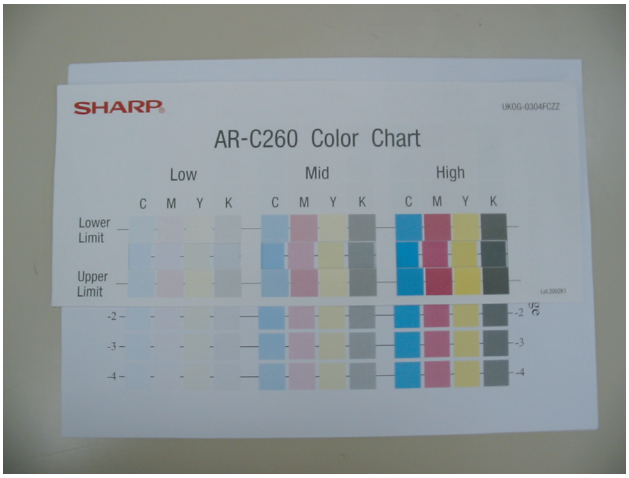

Low Density
Mid Density
High Density
C
M
Y
Bk
+4
+3
+2
+1
±0
-1
-2
-3
-4

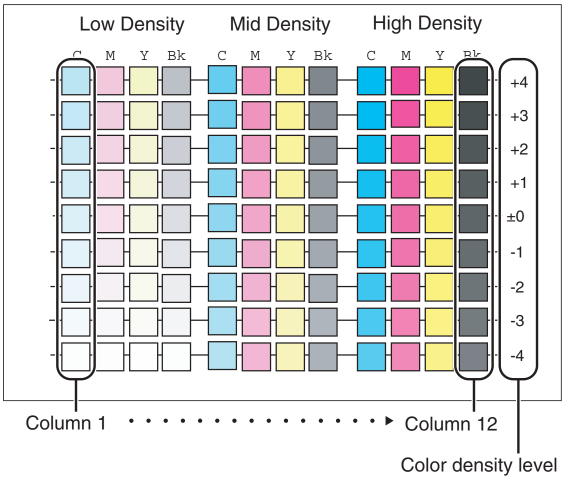
(Note) Use paper of the same or nearest color as the back-ground color of the test chart (UKOG-0305FCZZ) as far as possible.

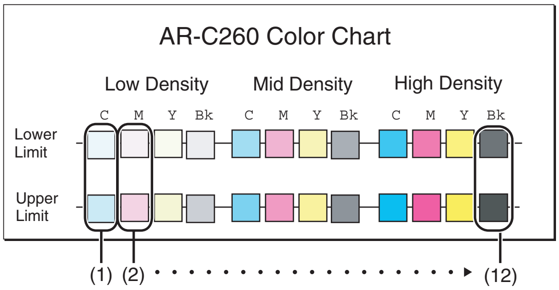
6) Collate the test chart (UKOG-0305FCZZ) and the test pattern patch density.

   Place the test chart on the printed pattern so that the printed pattern can be seen from the cut sections. Put several sheets of white paper beneath the printed pattern.


SHARP
AR-C260 Color Chart
Low
Mid
High
C M Y K
Lower Limit
Upper Limit


SHARP
UKOG-0304FCZZ
AR-C260 Color Chart
Low
Mid
High
C M Y K
Lower Limit
Upper Limit
-2
-3
-4


Low Density
Mid Density
High Density
C
M
Y
Bk
+4
+3
+2
+1
±0
-1
-2
-3
-4
Column 1
Column 12
Color density level


AR-C260 Color Chart
Low Density
Mid Density
High Density
C M Y Bk C M Y Bk C M Y Bk
Lower Limit
Upper Limit
(1) (2)
(12)

Find out the density point in the test pattern array 1 which lies between the Lower Limit and the Upper Limit of the test chart (1).

Put a check mark on the density point found in the procedure above.

If there is no density point which satisfies the above condition in test pattern array 1, perform the following procedures.

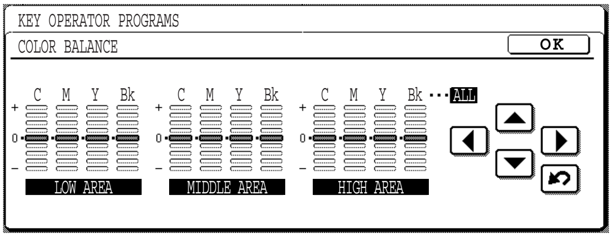
- When the test chart (1) density is higher than the maximum density (+4) in the array 1:
  → Put a check mark on "+4" in the array 1.
- When the test chart (1) density is lower than the minimum density (–4) in the array 1:
  → Put a check mark on "-4" in the array 1.

For densities of Test chart (2) to (12), perform the same procedure as procedure 6).

7) Set the adjustment points (+4 to –4 on the right side) corresponding to the density points (12 positions) marked with check mark on the test pattern on the adjustment menu.

8) Press the OK key. (The adjustment values are set.)

Adjustment menu


KEY OPERATOR PROGRAMS
COLOR BALANCE
OK
C M Y Bk
C M Y Bk
C M Y Bk
ALL
+
0
–
LOW AREA
MIDDLE AREA
HIGH AREA

Operating procedures

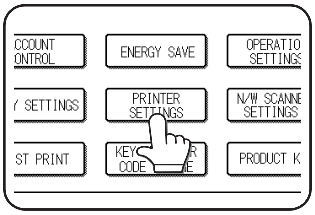
- Use the ◀ and ▶ keys to select the color (Y, M, C, or Bk) in “LOW AREA”, “MIDDLE AREA” or “HIGH AREA” that you wish to adjust.
- Use the ▲ and ▼ keys to select the density level (+4 to –4) that matches the density level in the standard color chart.
- Use the ↺ key to return all values to the default settings.
- To adjust all values simultaneously, select “ALL” with the ▶ key and then adjust the values with the ▲ and ▼ keys.

When there is no density point that corresponds to the center between the Lower Limit and the Upper Limit in the test pattern in procedures 6) and 7), or when "+4" or "–4" adjustment point is set:

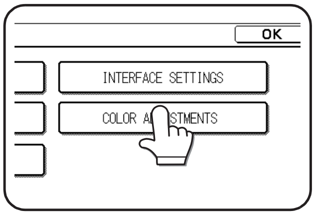
Repeat procedures 4) to 8) until a density pattern that corresponds to the center of the Lower Limit and the Upper Limit of the test chart appears in the test pattern.

(2) Easy calibration (Gray balance adjustment)

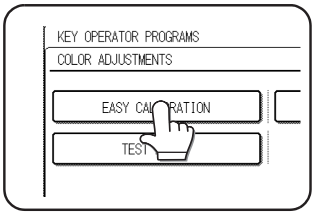
1) Enter the key operator program mode.
2) Select "Printer setting."


CCOUNT ONTROL
ENERGY SAVE
OPERATIO SETTINGS
/ SETTINGS
PRINTER SETTINGS
N/W SCANNE SETTINGS
ST PRINT
KEY CODE
PRODUCT K

3) Select "Color adjustments."

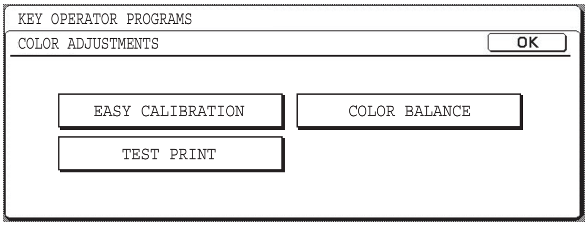

OK
INTERFACE SETTINGS
COLOR ADJUSTMENTS

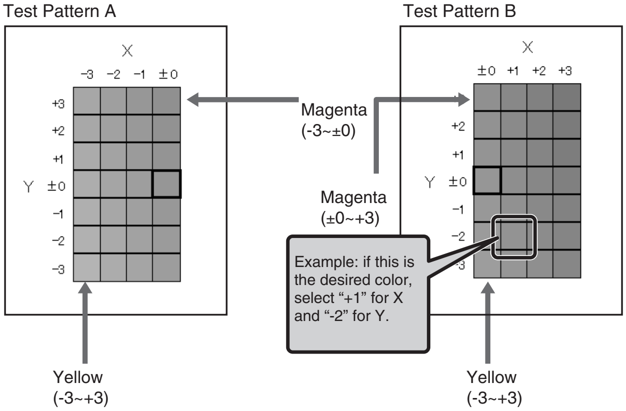
4) Select "Easy calibration adjustments."


KEY OPERATOR PROGRAMS
COLOR ADJUSTMENTS
EASY CALIBRATION
TEST

5) The display below is shown. Select A4 or 8.5" x 11" size paper, and press the EXECUTE key.

The test pattern for adjustment is printed, and the adjustment menu is displayed.


KEY OPERATOR PROGRAMS
COLOR ADJUSTMENTS
OK
EASY CALIBRATION
COLOR BALANCE
TEST PRINT


Test Pattern A
Test Pattern B
X
–3 –2 –1 ±0
±0 +1 +2 +3
Y
+3
+2
+1
±0
–1
–2
–3
Magenta (-3~±0)
Magenta (±0~+3)
Example: if this is the desired color, select “+1” for X and “-2” for Y.
Yellow (-3~+3)
Yellow (-3~+3)

The test patterns A and B show the process gray with the current adjustment value as the reference value (±0).

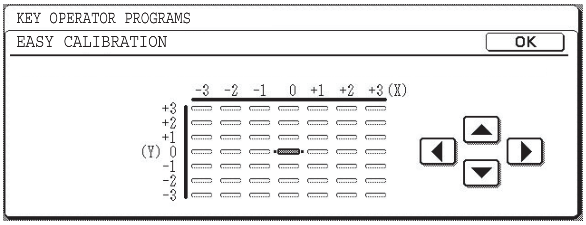
In the X-axis, the Magenta density is varied in 7 steps of –3 to +3. (Test pattern 2 in –3 to ±0, Test pattern 3 in ±0 to +3)

In the Y-axis, the Yellow density is varied in 7 steps of –3 to +3.

The Cyan density is fixed.

6) Refer to the printed test pattern, and select the desired color phase (Gray level).

7) Set the adjustment point corresponding to the color phase (Gray level) selected in procedure 6) on the adjustment menu.


KEY OPERATOR PROGRAMS
EASY CALIBRATION
OK
-3 -2 -1 0 +1 +2 +3 (X)
+3
+2
+1
(Y) 0
-1
-2
-3

Operating procedures

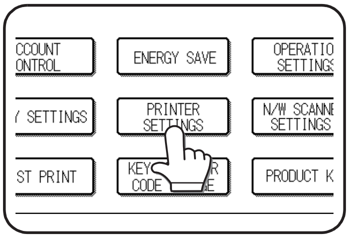
Touch the ◀, ▲, ▼ and ▶ keys to select the desired color of gray.

8) Press the OK key. (The adjustment values are set.)

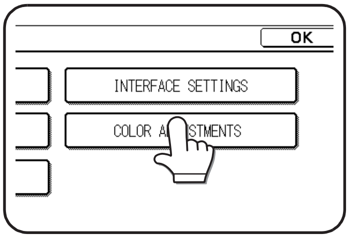
(3) Color balance adjustment result check

1) Enter the key operator program mode.

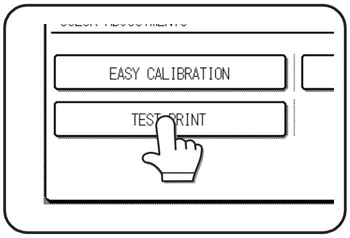
2) Select "Printer setting."


CCOUNT
ONTROL
ENERGY SAVE
OPERATIO
SETTINGS
/ SETTINGS
PRINTER
SETTINGS
N/W SCANNE
SETTINGS
ST PRINT
KEY
CODE
PRODUCT K

3) Select "Color adjustments."

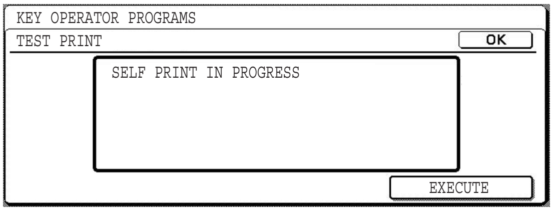

OK
INTERFACE SETTINGS
COLOR ADJUSTMENTS

4) Select the test print.


EASY CALIBRATION
TEST PRINT

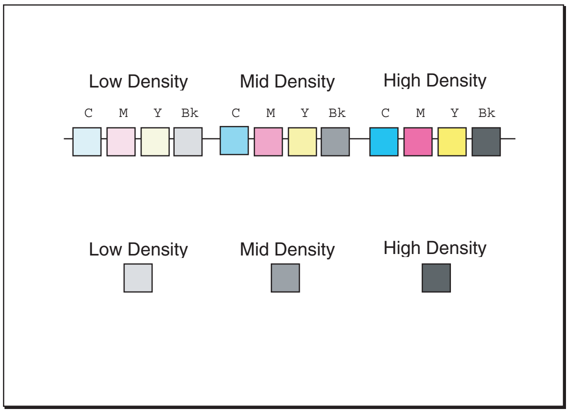
5) The display below is shown. Select A4 or 8.5" x 11" size paper, and press the EXECUTE key.

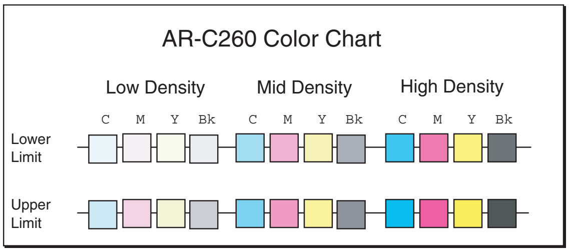
The test pattern for the color balance adjustment is printed.


KEY OPERATOR PROGRAMS
TEST PRINT
OK
EXECUTE

SELF PRINT IN PROGRESS

6) Check that each patch density on the printed test chart is at the center of the Lower Limit and the Upper limit of the test chart (UKOG-0305FCZZ).


Low Density
Mid Density
High Density
C M Y Bk
C M Y Bk
C M Y Bk
Low Density
Mid Density
High Density


AR-C260 Color Chart
Low Density
Mid Density
High Density
C M Y Bk
C M Y Bk
C M Y Bk
Lower Limit
Upper Limit

9. Simulation

A. List

Code		Function (Purpose)	Purpose	Remarks
Main	Sub			
26	54	Used to set enable/disable of auto color calibration for the printer.	Setting	Selection of the adjustment with SIM 67-24 and the conventional user color balance adjustment (key operation). (0 = conventional user color balance adjustment, 1 = adjustment with SIM 67-24) Only in the adjustment with SIM 67-24, the printer half-tone process control is enabled. This function is used to select the user color balance adjustment (key operation) when the user wants to adjust manually by himself.
44	1	Used to set enable/disable of correction operations in the image forming (process) section.	Setting	HT (PRT) ON/OFF: Set to OFF when the printer half-tone process control operation is abnormal. (Default setting: ON) MD (PRT_BK) ON/OFF: Set to OFF to improve gradation of the printer monochrome mode when the life of the photoconductor is nearly expired. (Default setting: ON)
67	1	Used to check the operations of printer DRAM read/write.	Operation test/check	
	11	Used to set the printer parallel I/F SELECT IN signal.	Setting	
	14	Used to perform version up of the firmware. (Printer)	Version up	
	17	Used to clear NVRAM. (Printer)	Data clear	
	18	Used to clear the Flash data. (Printer)	Data clear	
	24	Used to adjust half-tone density of the printer engine automatically.	Adjustment	When this function is executed: When installing (including the AR-P16N/PK4), when replacing consumable parts (Drum cartridge, TN cartridge, transfer belt), when changing to "1" with SIM 26-54, when the screen is switched with SIM 67-29, or when there is a great change in color. ∗ Execute after the automatic adjustment (SIM 46-24) of copy.
	25	Printer engine color balance manual correction: PG print	Adjustment	Used to perform a fine adjustment of color from the adjustment of SIM 67-24.
	26	Used to select the target value of the referenced scanner in the printer engine automatic density adjustment.	Adjustment	The target value set with SIM 67-24 and the gray balance can be adjusted.
	27	Used to display and register the scanner target value (for servicing) of the printer engine automatic density adjustment.	Adjustment	Conforms to the service button of SIM 67-24. (The serviceman can scan the target value.)
	28	Used to reset the scanner target value (for servicing) in the printer engine automatic density adjustment to the standard value.	Adjustment	Reset to the standard value of SIM67-27. (The value is reset to the factory setting.)
	29	Used to set the printer screen mode.	Setting	Printer screen selection. When DEF is 0, it is the same as the conventional screen. When DEF is 1, it is an option screen with improved grainy. (However, the number of lines of the screen is reduced.)
	40	Used to copy the scanner destination. (Flash writing)	Setting	

B. Details

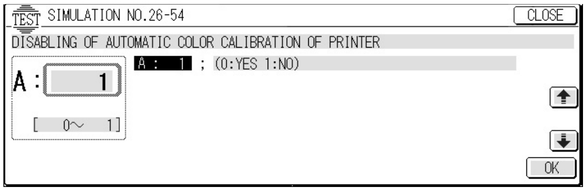
26

26 -54

Purpose	Setting
Function (Purpose)	Used to set enable/disable of auto color calibration for the printer.
Item	Specifications Operation mode
Operation/ Procedure	1. Select Enable or Disable with the 10-key. Disable 0: YES Enable 1: NO 2. Press the [OK] key.

Set value	Content	Default
0	Disable auto color calibration (automatic adjustment of printer color balance and density)	1
1	Enable auto color calibration (automatic adjustment of printer color balance and density)	

1: When set to enable, the easy calibration, test print, and color balance cannot be performed in the color adjustment of printer setting of key operation.



SIMULATION NO.26-54

DISABLING OF AUTOMATIC COLOR CALIBRATION OF PRINTER

A : 1 ; (0:YES 1:NO)

A : 1

[0～ 1]

44

44 -1

Purpose	Setting
Function (Purpose)	Used to set enable/disable of correction operations in the image forming (process) section.
Section	Process (Photoconductor, developing, transfer, cleaning)
Item	Operation
Operation/ Procedure	1. Select the process item to enable the operation. 2. Press the [EXECUTE] key. (The operations of all process items must be enabled.)

(Items to be selected)

Display	Content
HV	Image forming section correction (Process correction) (High-density image density correction)
HT	Half-tone image density correction
HT (PRT)	Half-tone image density correction (Printer)
TC	Transfer output correction
RRM	RRM speed correction
MD	Photoconductor membrane decrease (sensitivity/potential) correction
MD (PRT_BK)	Photoconductor membrane decrease (sensitivity/potential) correction (Printer: monochrome)
AR	Image resist auto adjustment *1
AR CHK	Image resist auto adjustment error judgment YES/NO *2

*1: When SIM 50-20 is used to adjust the image resist to the best and the image resist adjustment is performed under the following condition automatically, the best adjustment state may be changed. To avoid this, set the adjustment item AR to Disable.

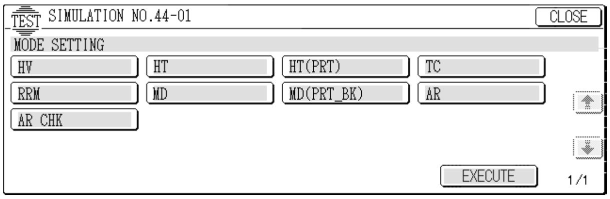
When the adjustment item AR is set to Disable (ON), the image resist adjustment is automatically performed under the following conditions.

Normally set to ON condition.

*2: When the image registration automatic adjustment operation is abnormal, it is judged as an error or not.

- After replacement of a toner cartridge

At every 8000 copies (total of print and copy)
(When, however, 8000 copies is reached during a job, the operation is stopped after completion of the job.)



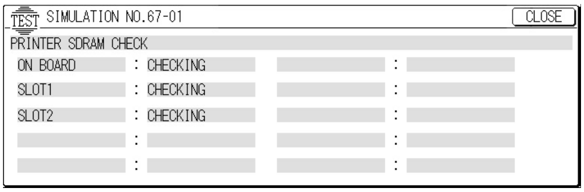
SIMULATION NO.44-01

MODE SETTING

67

67 -01

Purpose	Operation test/check
Function (Purpose)	Used to check the operations of printer DRAM read/write.
Section	Printer
Item	Operation
Operation/ Procedure	When the machine enters the simulation mode, the printer DRAM read/write operation check is started. After completion of check, "ERROR" or "MEMORY SIZE" is displayed. If no memory is installed, "NA" is displayed.



SIMULATION NO.67-01

PRINTER SDRAM CHECK

ON BOARD : CHECKING

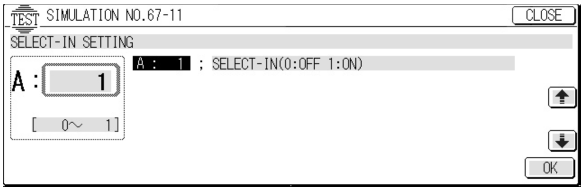
SLOT1 : CHECKING

SLOT2 : CHECKING

67 -11

Purpose	Setting
Function (Purpose)	Used to set the printer parallel I/F SELECT IN signal.
Section	Printer
Item	Operation
Operation/ Procedure	Enter the set value with the 10-key, and press the [OK] key. When a trouble occurs in communication between PC and the printer by use of the printer parallel I/F, change the setup content of this simulation.

Display		Content	Set range	Default
A	SELECT-IN (0:OFF 1:ON)	Centro I/F SELECT IN signal YES/NO setting	0 – 1	1



SIMULATION NO.67-11

SELECT-IN SETTING

A : 1 ; SELECT-IN(0:OFF 1:ON)

A : 1

[0~ 1]

67 -14

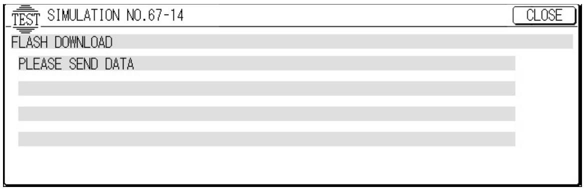
Purpose	Version up
Function (Purpose)	Used to perform version up of the firmware. (Printer)
Section	Firmware (Printer)
Item	Operation
Operation/ Procedure	1. When the machine enters the simulation mode, it enters the printer firmware version up mode at the same time.

2. Use "fcopy" command on the PC side to download the firmware file.

When the firmware data are normally downloaded and written into the Flash ROM, "COMPLETE" is displayed.

In case of an error, the following message is displayed.

- * When the Flash ROM kind is improper: "ROM KIND ERROR" is displayed.
- * When an error occurs during initializing the Flash ROM: "FLASH ERROR" is displayed.
- * When an error occurs during verifying: "UPDATE ERROR" is displayed.



SIMULATION NO.67-14

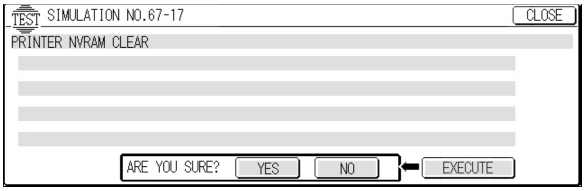
FLASH DOWNLOAD

PLEASE SEND DATA

67 -17

Purpose	Data clear
Function (Purpose)	Used to clear NVRAM. (Printer)
Section	Printer
Item	Others
Operation/ Procedure	1. Press the [EXECUTE] key. The confirmation message to clear is displayed. 2. Select YES/NO to clear the NVRAM. YES: Clear NO: Not clear

When the printer NVRAM is normally cleared, "COMPLETE" is displayed. In case of an error, "ERROR" is displayed.



SIMULATION NO.67-17

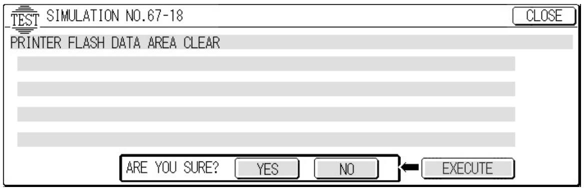
PRINTER NVRAM CLEAR

ARE YOU SURE?

67 -18

Purpose	Data clear
Function (Purpose)	Used to clear the Flash data. (Printer)
Section	Printer
Item	Others
Operation/ Procedure	1. Press the [EXECUTE] key. The confirmation message to clear the Flash data is displayed. 2. Select YES/NO to clear the Flash data. YES: Clear NO: Not clear

When the printer Flash data are normally cleared, "COMPLETE" is displayed. In case of an error, "ERROR" is displayed.



SIMULATION NO.67-18

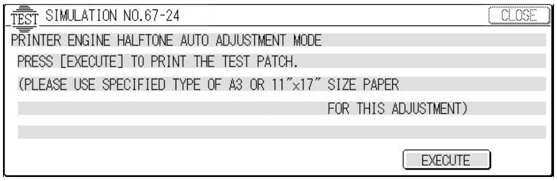
PRINTER FLASH DATA AREA CLEAR

ARE YOU SURE?

67 -24

Purpose	Adjustment
Function (Purpose)	Used to adjust half-tone density of the printer engine automatically.
Operation/ Procedure	1. Select a color to be set. 2. Select an item to be set.

1. Press [EXECUTE] key. (A3 or 11" x 17" paper is automatically selected.)
   The color patch image (adjustment pattern) is printed out.
2. Set the color patch image (adjustment pattern) printed in procedure 1) on the document table.
3. Press [FACTORY] key on the operation panel, and press [EXECUTE] key.
   The printer color balance adjustment (step 1) is automatically performed and the color balance check patch image is printed out.
4. Press [REPEAT] key.
5. Press the [EXECUTE] key.
   The color patch image (adjustment pattern) is printed out.
6. Set the color patch image (adjustment pattern) printed in procedure 5) on the document table. (Set the image so that the higher-density area comes on the paper exit side.)
7. Press [FACTORY] key on the operation panel, and press [EXECUTE] key.
   The printer color balance adjustment (step 2) is automatically executed, and the color balance check patch image is printed out.
8. Press [OK] key on the operation panel. Initial setting of half-tone image connection is executed according to the adjustment data.



SIMULATION NO.67-24

PRINTER ENGINE HALFTONE AUTO ADJUSTMENT MODE

PRESS [EXECUTE] TO PRINT THE TEST PATCH.

(PLEASE USE SPECIFIED TYPE OF A3 OR 11"x17" SIZE PAPER FOR THIS ADJUSTMENT)

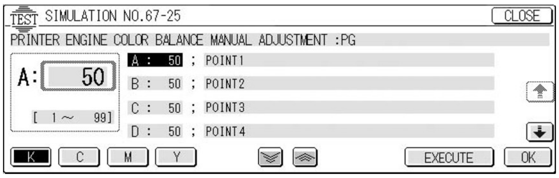
67 -25

Purpose	Adjustment
Function (Purpose)	Printer engine color balance manual correction: PG print
Operation/ Procedure	1. Select a color to be set. 2. Select an item to be set.

3. Enter a set value with the 10-key, and press [OK] key. (When [v]/[^] key is pressed, the set value is increased or decreased in the increment of 1.
   [OK] key is highlighted and the set value is saved to the backup area and the RAM. Sending is made to the printer controller.
   After completion of sending, [OK] key is returned to the normal display.
4. Press the [EXECUTE] key.
   [EXECUTE] key is highlighted, and self-print is executed.
   After completion of the operation, [EXECUTE] key is returned to the normal display.

Item		Set range	Default
A	POINT1	1 – 99	50
B	POINT2	1 – 99	50
C	POINT3	1 – 99	50
D	POINT4	1 – 99	50
E	POINT5	1 – 99	50
F	POINT6	1 – 99	50
G	POINT7	1 – 99	50
H	POINT8	1 – 99	50
I	POINT9	1 – 99	50
J	POINT10	1 – 99	50
K	POINT11	1 – 99	50
L	POINT12	1 – 99	50
M	POINT13	1 – 99	50
N	POINT14	1 – 99	50
O	POINT15	1 – 99	50

Common to KCMY



SIMULATION NO.67-25

PRINTER ENGINE COLOR BALANCE MANUAL ADJUSTMENT :PG

A: 50

[1～ 99]

A : 50 ; POINT1

B : 50 ; POINT2

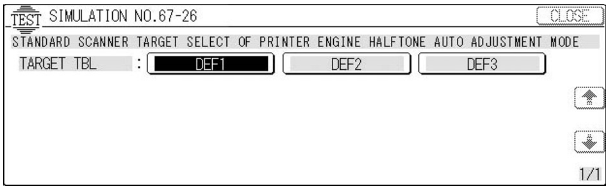
C : 50 ; POINT3

D : 50 ; POINT4

67 -26

Purpose	Adjustment
Function (Purpose)	Used to select the target value of the referenced scanner in the printer engine automatic density adjustment.
Operation/ Procedure	Select a target value (set value). The selected target value (set value) is highlighted.

Content of item	Set value	Default
Target value table setting	DEF1, DEF2, DEF3	DEF1



SIMULATION NO.67-26

STANDARD SCANNER TARGET SELECT OF PRINTER ENGINE HALFTONE AUTO ADJUSTMENT MODE

TARGET TBL : DEF1 DEF2 DEF3

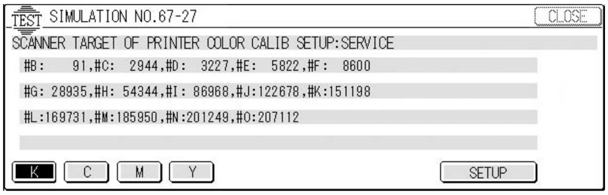
67 -27

Purpose	Adjustment
Function (Purpose)	Used to display and register the scanner target value (for servicing) of the printer engine automatic density adjustment.
Operation/ Procedure	1. Select a color for sampling. 2. Press [SETUP] key.

3. Set the color patch image (adjustment pattern) printed in SIM 67-25 on the document table, and press [EXECUTE] key.
   [EXECUTE] key is highlighted and sampling is executed.
4. After completion of the operation, [EXECUTE] key is returned to the normal display, and the sampling result is displayed.
   When [REPEAT] key is pressed, the process returns to procedure 3).
5. Press the [OK] key.
   The displayed target value is saved to the backup area as the target value.

Display data	Display content
B	Target value of point B
C	Target value of point C
D	Target value of point D
E	Target value of point E
F	Target value of point F
G	Target value of point G
H	Target value of point H
I	Target value of point I
J	Target value of point J
K	Target value of point K
L	Target value of point L
M	Target value of point M
N	Target value of point N
O	Target value of point O
BASE	Base sampling value

∗ For BASE, only the sampling result display menu is displayed.



SIMULATION NO.67-27

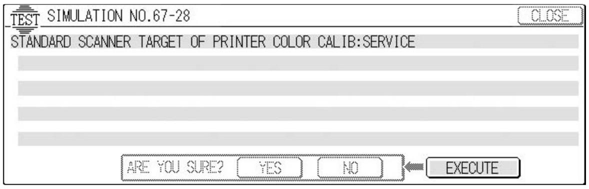
SCANNER TARGET OF PRINTER COLOR CALIB SETUP:SERVICE

```
#B:    91,#C:  2944,#D:  3227,#E:  5822,#F:  8600
#G: 28935,#H: 54344,#I: 86968,#J:122678,#K:151198
#L:169731,#M:185950,#N:201249,#O:207112
```

67 -28

Purpose	Adjustment
Function (Purpose)	Used to reset the scanner target value (for servicing) in the printer engine automatic density adjustment to the standard value.
Operation/ Procedure	The registration target value set with SIM67-27 (Printer engine automatic density adjustment scanner target value (for servicing) display & registration) is reset to the standard value.

1. Press the [EXECUTE] key.
2. Select [YES]. (If [NO] is selected, the display returns to the initial display.)
   The value is reset to the standard value, and the data are saved to the backup area.



SIMULATION NO.67-28

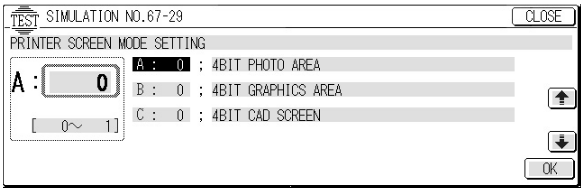
STANDARD SCANNER TARGET OF PRINTER COLOR CALIB:SERVICE

ARE YOU SURE?

67 -29

Purpose	Setting
Function (Purpose)	Used to set the printer screen mode.
Operation/ Procedure	1. Select a set item with the scroll key. 2. Enter a set value with the 10-key. 3. Press the [OK] key.

	Item	Content	Set range	Default
A	4BIT PHOTO AREA	0:PHOTO1 1:PHOTO2	0 – 1	0
B	4BIT GRAPHICS AREA	0:GRAPHICS1 1:GRAPHICS2	0 – 1	0
C	4BIT CAD SCREEN	0:CAD1 1:CAD2	0 – 1	0



SIMULATION NO.67-29

PRINTER SCREEN MODE SETTING

A : 0

[0～ 1]

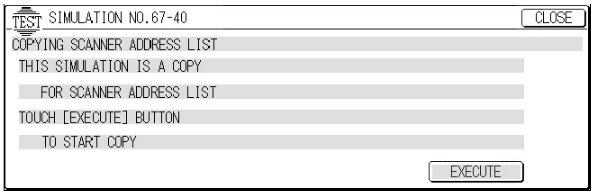
A : 0 ; 4BIT PHOTO AREA

B : 0 ; 4BIT GRAPHICS AREA

C : 0 ; 4BIT CAD SCREEN

67 -40

Purpose	Setting
Function (Purpose)	Used to copy the scanner destination. (Flash writing)
Section	FAX
Item	Data Writing
Operation/ Procedure	1. Insert a new ROM of copy destination into the socket of the firm ROM. 2. Insert the copy source ROM into the font ROM socket. 3. Press the [EXECUTE] key. 4. ROM data initializing, writing, and verifying are performed. ∗ When the result is displayed, CA key and the CUSTOM SETTINGS key become valid.



SIMULATION NO.67-40

COPYING SCANNER ADDRESS LIST

THIS SIMULATION IS A COPY

FOR SCANNER ADDRESS LIST

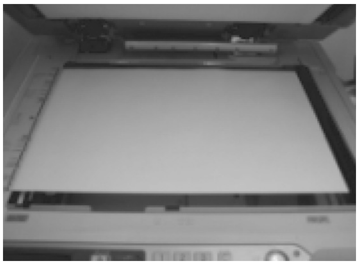
TOUCH [EXECUTE] BUTTON

TO START COPY

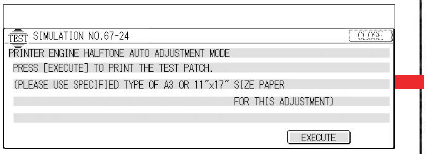
10. Printer automatic color balance adjustment procedures

1) Execute SIM 67-24.
2) Press EXECUTE key on the LCD display to output a patch self-print for the scanner adjustment. The process control is executed. When the display of "NOW PROCON EXECUTING" is gone, the color patch for the printer adjustment written as "PRINTER CALIBRATION" is outputted. (Note that it is different from the color patch for the copy adjustment. If it is erroneously set, an error display is made.)
3) Set the print made in procedure 2) on the table glass with the higher density side on the paper exit side.
   Put five sheets of white paper on the print, select FACTORY key, and press EXECUTE key again to make an output.
4) After making an output print, press OK key on the LCD display. Press CA key on the main unit to terminate the simulation.

(Document reference)



[Enter SIM 67-24, and press EXECUTE key.]



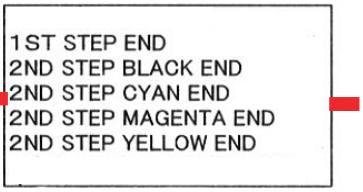
SIMULATION NO.67-24

PRINTER ENGINE HALFTONE AUTO ADJUSTMENT MODE

PRESS [EXECUTE] TO PRINT THE TEST PATCH.

(PLEASE USE SPECIFIED TYPE OF A3 OR 11"x17" SIZE PAPER

FOR THIS ADJUSTMENT)



1ST STEP END

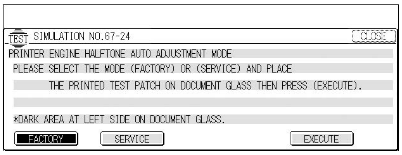
2ND STEP BLACK END

2ND STEP CYAN END

2ND STEP MAGENTA END

2ND STEP YELLOW END

[Set paper and select FACTORY key.]



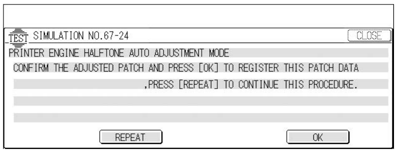
SIMULATION NO.67-24

PRINTER ENGINE HALFTONE AUTO ADJUSTMENT MODE

PLEASE SELECT THE MODE (FACTORY) OR (SERVICE) AND PLACE

THE PRINTED TEST PATCH ON DOCUMENT GLASS THEN PRESS (EXECUTE).

*DARK AREA AT LEFT SIDE ON DOCUMENT GLASS.



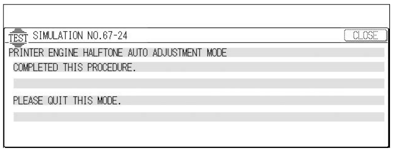
SIMULATION NO.67-24

PRINTER ENGINE HALFTONE AUTO ADJUSTMENT MODE

CONFIRM THE ADJUSTED PATCH AND PRESS [OK] TO REGISTER THIS PATCH DATA

,PRESS [REPEAT] TO CONTINUE THIS PROCEDURE.

[Press OK key.]



SIMULATION NO.67-24

PRINTER ENGINE HALFTONE AUTO ADJUSTMENT MODE

COMPLETED THIS PROCEDURE.

PLEASE QUIT THIS MODE.

[Press CA key.]

5) At the end, check that the printed color balance check patch is within the following specifications.

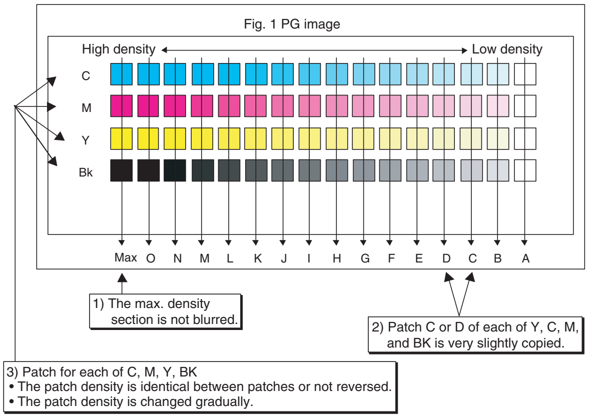


Fig. 1 PG image

1) The max. density section is not blurred.

2) Patch C or D of each of Y, C, M, and BK is very slightly copied.

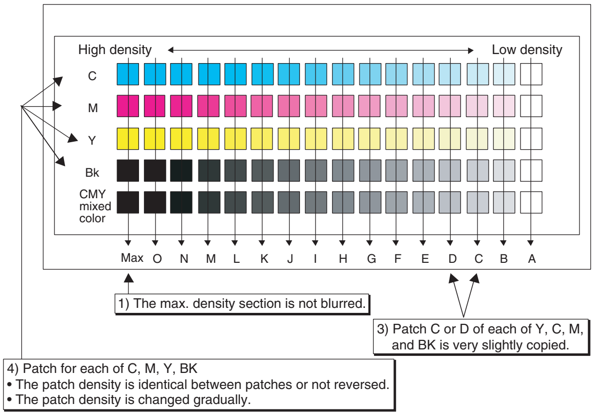
3) Patch for each of C, M, Y, BK
- The patch density is identical between patches or not reversed.
- The patch density is changed gradually.

The print density is gradually changed from the lower area to the higher area without reversing of the change direction.

The density level of each color is virtually same.

Patch B may not be printed.

The performance of the color balance adjustment can be checked more precisely by printing the color balance adjustment sheet with SIM 67-25 and comparing the black patch color balance of each process (CMY) with the black patch.



1) The max. density section is not blurred.

3) Patch C or D of each of Y, C, M, and BK is very slightly copied.

4) Patch for each of C, M, Y, BK
- The patch density is identical between patches or not reversed.
- The patch density is changed gradually.

11. AR-EB8 (Scanner function)

A. AR-EB8 (Scanner function)

The scanner function is enabled by canceling the product key. This function requires installation of an expansion memory of 256MB and a scanner expansion board.

(1) PUSH SCAN

PUSH SCAN is used to send scan data to PC or a file server by the operation on the machine operation panel.

PUSH SCAN has the following three modes:

- SCAN TO E-MAIL (SMTP) *
  Scan data area attached to an E-mail.
- SCAN TO FILE SERVER (FTP)
  Scan data are sent to a file server by FTP.
  The URL can be e-mailed simultaneously.
- SCAN TO DESKTOP (FTP)
  Scan data are sent to the desktop user. (Sharpdesk and the network scanner tool are required.)

*: The SCAN TO E-MAIL function is available, but broadcast communication with FAX cannot be used.

a. Operation flow (PUSH SCAN)

1. Push [IMAGE SEND] button on the operation panel to switch to the main menu of the image send mode.
2. Push [SCANNER ↔ FAX] switch button to select [SCANNER].
3. Press [DESTINATION LIST] or [E-MAIL ADDRESS] button to set a destination. (The local address book cannot be retrieved.)
4. According to the necessity, set the sender with [SENDER LIST] button.
5. According to necessity, select the scanning conditions with [DENSITY], [IMAGE QUALITY], [FORMAT], AND [DOCUMENT] buttons.
6. Press the color start key or the black-and-white start key to start scanning. When the color start key is pressed, scanning is made in color. When the black-and-white start key is pressed, scanning is made in black and white.
7. When it takes a considerable time for sending, the progress status is displayed.

b. Basic operations (PUSH SCAN)

Network protocol	TCP/IP, SMTP, FTP, (HTTP)
Trial mode required (AR-EB8)	Supported by the service diag. The upper limit is 500 scans (surfaces). Without canceling the product key, scanning functions are enabled. 500 counts in total of color and black-and-white scans. There is no counter for trial. If the memory capacity is small, restrict the resolution.
Destination registration	500 items of scan to E-mail from Embedded Web Server + group, and 100itmes of Scan to FTP + Desktop (Max. 600 items can be registered.) Scan to E-mail only can be registered from the operation panel. A destination name can be set with max. 18 characters in two bytes (or 36 characters in one byte). An E-mail address can beg set with max. 50 characters in one byte.
Address book	The static address book stored in MFP is supported. Destination sorting is performed in the tab. (Sort sequence: retrieval text + destination name)
Destination select	Selected from the operation panel. Selection of two or more destinations is allowed. (Only Scan to E-mail) Sending to temporary users can be made. CC: / BCC: Send enable
Sender select	Select from the list of senders (20) on the operation panel. If it is not set, the default which is set by Web is used. Setting can be made from the key operator program.

Image setup	Image quality setup	Color (RGB, each 8bit), Monochrome binary (1bit)
	Binary system	Error diffusion
	Text/photo area separation	Automatic
	Moire reduction mode	Yes
	Color enhancement mode	N/A
	Density	Automatic (Monochrome only. For color, same as density 3 manual.) Manual (9 steps: 1 to 5, 0.5 increment) Default: 3
	Resolution	Color Monochrome Low 2 100 dpi x 100 dpi 150 dpi x 150 dpi Low 1 150 dpi x 150 dpi 200 dpi x 200 dpi (Default) Normal 200 dpi x 200 dpi 300 dpi x 300 dpi High 1 300 dpi x 300 dpi 400 dpi x 400 dpi High 2 600 dpi x 600 dpi 600 dpi x 600 dpi The above resolutions are displayed on the panel. There is no optional setting of resolution.
Document	Document arrangement	Single surface document Duplex document (side bind) Duplex document (top bind)
	Image rotation	0° 90° (A document is rotated 90 degrees to be set. Used mainly for portrait image scan of Legal, B4, A3. etc.)
	Document detection size	Automatic detection (The automatic detection allowable size can be set by the key operation.) Manual setup (Automatic detection cancel: Fixed sizes) Manual setup (Automatic detection cancel: Other than fixed sizes) Display in mm
	Document type/ Image quality type	Automatic Text Text/Printed Photo Text/Photograph Printed Photo * Photograph * *: Only in manual density adjustment Map * (The default: Text mode)
File format	B/W (1bit)	TIFF-Non compression (Multi page allowed) TIFF-G3-1dim (Multi page allowed) TIFF-G4 (Multi page allowed) PDF-Non compression (Multi page allowed) PDF-G3-1dim (Multi page allowed) PDF-G4 (Multi page allowed)
	Color (RGB x 8bits)	PDF High compression (Multi page allowed) PDF Medium compression (Multi page allowed) PDF Low compression (Multi page allowed) JPEG High compression (Multi page inhibited) JPEG Medium compression (Multi page inhibited) JPEG Low compression (Multi page inhibited) Multi page inhibited: Means images on two or more pages cannot be sent as one file. They can sent or saved as two or more attached files.
	Filed by each page	ON / OFF (In JPEG, fixed to ON.)
	Process when the specified value is exceeded	The specified size can be set with the key operator program. When the size exceeds the specified level, scan is cancelled.
	OC multi scan	Documents of two or more pages can be set as one file from the platen. (Except for JPEG)
Job contention	a) When the printer is brought into standby state, if there is any memory capacity, the job process is continued. If there is no memory capacity, the job is terminated. b) Though there is any memory capacity, the next job is not proceeded. However, data are received.	
Job history	The job history is not recorded.	
Utility	Sharpdesk V3.0 or later	

Memory restriction matrix

<table>
<tr><td rowspan="9">Network scan specifications</td><td rowspan="4">ICU PWB</td><td>Combination</td><td colspan="3">Standard</td><td colspan="2">Expansion-1</td><td>Expansion-2</td><td></td></tr>
<tr><td>Standard (Slot 1)</td><td colspan="3">256 MB</td><td colspan="2">256 MB</td><td>256 MB</td><td></td></tr>
<tr><td>Expansion memory (Slot 2)</td><td colspan="3">—</td><td colspan="2">128 MB</td><td>256 MB</td><td></td></tr>
<tr><td>Total memory capacity</td><td colspan="3">256 MB</td><td colspan="2">384 MB</td><td>512 MB</td><td></td></tr>
<tr><td rowspan="5">Printer controller PWB</td><td>Combination</td><td>Standard</td><td>Expansion-1</td><td colspan="2">Expansion-2</td><td>Expansion-3</td><td>Expansion-4</td><td></td></tr>
<tr><td>Standard (Onboard)</td><td>128 MB</td><td>128 MB</td><td colspan="2">128 MB</td><td>128 MB</td><td>128 MB</td><td></td></tr>
<tr><td>Expansion memory (Slot 1)</td><td>—</td><td>128 MB</td><td colspan="2">256 MB</td><td>256 MB</td><td>256 MB</td><td></td></tr>
<tr><td>Expansion memory (Slot 2)</td><td>—</td><td>—</td><td colspan="2">—</td><td>128 MB</td><td>256 MB</td><td></td></tr>
<tr><td>Total memory capacity</td><td>128 MB</td><td>256 MB</td><td colspan="2">384 MB</td><td>512 MB</td><td>640 MB</td><td></td></tr>
<tr><td rowspan="4">PUSH scan</td><td rowspan="2">Trial mode</td><td>Color</td><td>○
150 dpi or less</td><td>←</td><td>←</td><td>←</td><td>←</td><td>←</td><td rowspan="4">HDD required</td></tr>
<tr><td>B/W</td><td>○
200 dpi or less</td><td>←</td><td>←</td><td>←</td><td>←</td><td>←</td></tr>
<tr><td rowspan="2">Normal mode (Option)</td><td>Color</td><td>×</td><td>×</td><td>○
300 dpi or less</td><td>○
300 dpi or less</td><td>○ (∗)
600 dpi or less</td><td>○ (∗)
600 dpi or less</td></tr>
<tr><td>B/W</td><td>×</td><td>×</td><td>○
600 dpi or less</td><td>○
600 dpi or less</td><td>○
600 dpi or less</td><td>○
600 dpi or less</td></tr>
</table>

∗: Expansion memory must be installed to both of the Copier ICU and the Printer board.

B. AR-EB8 installing procedure

<Before installation>

Check to insure that the data lamp on the operation panel is neither lighting nor blinking, and execute installing procedures.

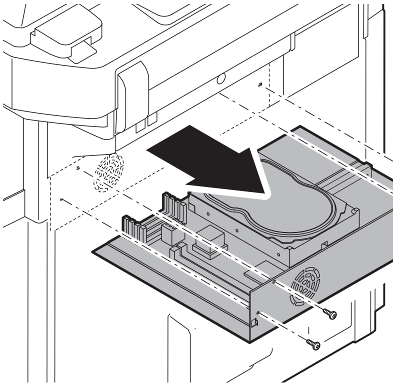
(1) Turn OFF the main switch of the printer.

Turn OFF the main switch on the left rear side of the printer.

Then, disconnect the power plug from the power outlet.

(2) Remove the printer controller unit.

Remove the printer controller fixing screws (4 pcs.) from the rear side of the printer, and remove the printer controller unit.

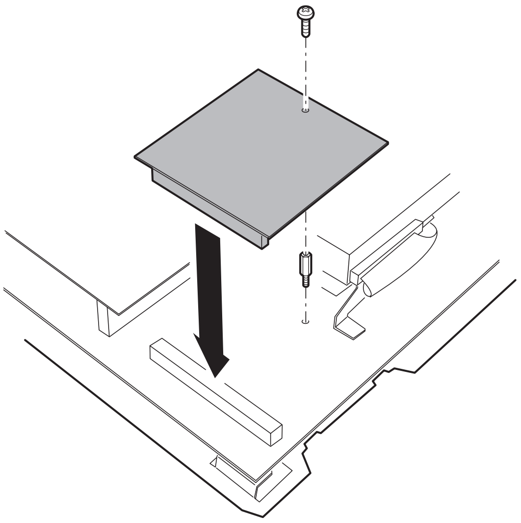


(3) Install the AR-EB8 PWB to the printer control PWB.

Install the AR-EB8 (scanner interface board) to the position shown on the printer control PWB unit.

1) Remove the fixing screw shown in the figure, and install the supporter (hex screw) packed together with the unit.
2) Install so that the AR-EB8 PWB connector is engaged with the scanner I/F connecter as shown in the figure.
3) Fix the AR-EB8 (scanner interface board) with the screw removed in procedure 1).

NOTE: Note that the hex screw is attached to the AR-EB8 packing material with adhesive tape.

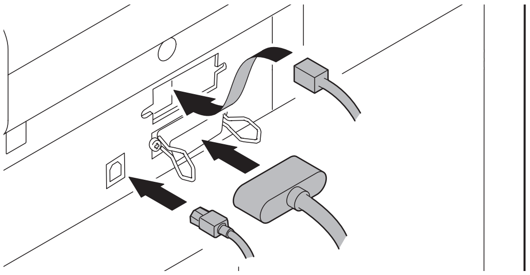


(4) Install the printer control PWB.

Install the printer control PWB unit to the printer body, and fix it with the removed fixing screws (4 pcs.).

(5) Connect the cable to the printer control PWB unit.

Connect t the Centro cable, the USB cable, and the LAN cable to the printer control PWB unit connectors.



(6) Turn ON the main switch of the printer.

Insert the power plug of the printer into the power outlet.

Turn ON the main switch on the rear side of the printer.

(7) Check the operation.

Check to insure that the scanner function (trial mode) operates normally.

12. AR-NS2 installing procedure

The scanner expansion board (AR-EB8) and the expansion memory module (256MB or more) are required to use the scanner expansion kit.

For installing procedures and the memory capacity, refer to the descriptions below.

To enable the scanner function, the product key must be acquired.

1) Check the capacity of the Printer PWB memory.

   Print the printer setting list by the key operation of the main unit operation panel.

   Check to confirm that the expansion memory is 256MB or above.

2) Prepare for use of the network scanner function.

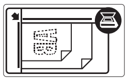
   To enable the system configuration, enter the product key with the user program.

   Use the 10-key to display the acquired product key on the LCD, and press [OK] key.

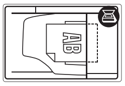
   The LCD displays "SCANNER KEY OK."

   Setting of the product key is complete. To update the system, press the [CA] key to exit the setting mode.

3) Paste the label.



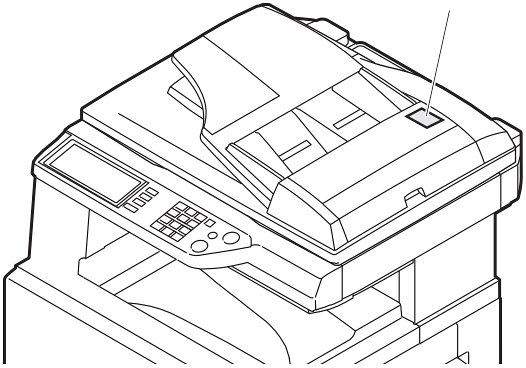
Orientation indication label A



Orientation indication label B

   Attach the document indication label (orientation indication label) B to the RSPF.

∗ Do not use the document indication label (orientation indication label) A.



Orientation indication label B

13. AR-PK4 installing procedures

A. General

To install the PS kit (AR-PK4), follow the procedures below.

1) Install the PS firmware ROM.
2) Enter the PS expansion kit product key.
3) Install the PS font.
4) Install the PS printer utility software.

B. Check items

The following items must be prepared for use of the AR-PK4.

- PS firmware ROM (standard accessory of the AR-PK4)
- CD-ROM with the PS printer utility software in it (standard accessory of the AR-PK4)
- PS expansion kit product key
- Hard disk unit (Must be installed to the main unit.)
- ROM's of the late version as shown below (the following versions or later)

  BOOT: 1.9 PCL: 5.1x ICU: 5.15 PCU: V5.09 SCN: 5.08 OPE: 5.14

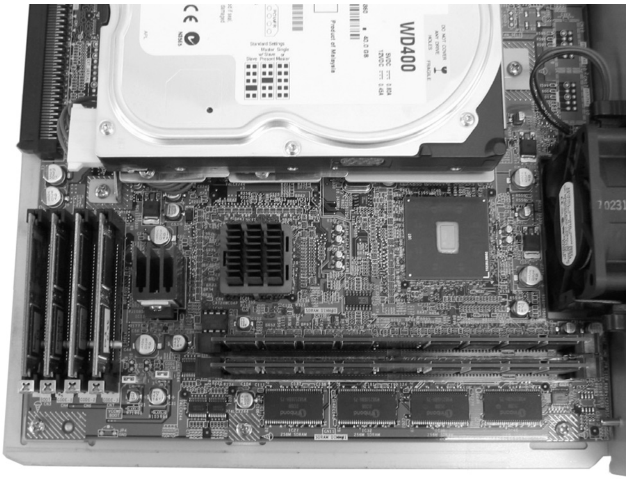
  Use SIM 22-5 to check that each version is as shown above or later one.

  - 512MB of expansion memory is required. (Plus 128MB of onboard memory, total 640MB.)

C. PS firmware ROM installation

1) Turn off the main unit power.
2) Remove the printer controller PWB.
3) Install the PS firmware ROM to the printer controller PWB [CODE-3] slot.

   (There are the boot ROM, the program (PCL) ROM, the font ROM, and the PS ROM in this order from outside of the PWB.)



4) If the capacity of expansion memory is insufficient, expand 512MB memory. (640MB in total, together with 128MB of onboard memory).
5) If the hard disk is not installed, install it to the main unit.
6) Install the printer controller PWB to the main unit.
7) Turn on the main unit power.
8) Enter the PS expansion kit product key in the key operator program mode.
9) Reboot the main unit.
10) After the main unit goes into the print ready state, use SIM 22-5 to check that the PS firmware version is displayed.

D. PS font data installing procedures

The PS font installing and uninstalling procedures for the AR-C260 series model with PS option are described below.

(Note) The PS fonts are licensed by Afga Monotype Corporation. The PS fonts in the CD-ROM of the AR-PK4 may be installed only to one machine according to the license contract. When, therefore, HDD is replaced for repair, etc., uninstall the font data from the HDD.

(1) PS font installing procedure

a. Necessary tools

1) PC (with a CD-ROM drive and a LAN port or a parallel port)
2) LAN cable or parallel cable
3) PS driver CD-ROM

b. Installing procedure

1) Preparation and check
    - Connect the printer and the PC with a LAN or a parallel cable.
    - Check to insure that the printer ready LED is lighted.
    - In the case of LAN connection, print the printer setting list and check the printer IP address.
    - In the case of LAN connection, check to insure that the network is properly set and the printer can be accessed.
    - Set the PS driver CD-ROM. (Suppose that the CD-ROM drive is "D:" drive.)
2) Open the OS prompt.
3) Shift to the PS font directory in the CD-ROM.

```
> d:
> cd cidfont
```

(Note) The PS font data are stored in a hidden folder on the root directory of the PS driver CD-ROM. If the hidden folder setting is valid, the hidden folder is not displayed on the DOS prompt. To display it, disable the hidden folder setting.

Installation can be executed regardless of the above folder display. To disable the hidden folder setting, however, perform the following procedures.
(Right-click the "cidfont" folder in the CD-ROM to open the property. Click the general menu tab, and uncheck the hidden file check box.)

4) Execute the PS font install command.
    a) In the case of LAN connection (When the printer IP address is 10.36.14.191.)

       > install 1 10.36.14.191 ENTER KEY

    b) In the case of parallel connection

       > install 2 ENTER KEY

5) Execute the procedures according to the display.
   (Execute the underlined procedures.)

(Example)

```
D:\cidfont>install 1 10.36.14.191
Font data are installed via the network.
To continue, press any key . . .
Step 1: Create a directory for the PS fonts in the hard disk.
Connected to 10.36.14.191.
220 Sharp AR-NC5J Ver 01.01.01 FTP server.
331 Password required.
230 User Logged in.
Anonymous login succeeded for s018235@NAR-CLA137.ns1.nara.
sharp.co.jp
ftp> bin
200 Type set to I.
ftp> put resource.ps
200 PORT command Ok.
150 Open data connection.
226 Data connection closed.
ftp: 2335694 bytes sent in 8.08Seconds 289.14Kbytes/sec.
ftp> bye
221 Quit.
Creating . . .
Check to insure that the printer data LED flashing is terminated,
and reboot the main unit.

To continue, press any key . . .
```

After checking the printer ready LED, press any key.

(Since the network initialization may not have been completed immediately after lighting the LED, FTP connection may be failed. In such a case, wait for 10sec after lighting the LED and continue the process.)

```
To continue, press any key . . .
Step 2: Install the font data.
Connected to 10.36.14.191.
220 Sharp AR-NC5J Ver 01.01.01 FTP server.
331 Password required.
230 User Logged in.
Anonymous login succeeded for s018235@NAR-CLA137.ns1.nara.
sharp.co.jp
ftp> bin
200 Type set to I.
ftp> put data\MoGothW3.CID
200 PORT command Ok.
150 Open data connection.
226 Data connection closed.
ftp: 2849552 bytes sent in 9.02Seconds 316.06Kbytes/sec.
ftp> put data\MoGothW4.CID
200 PORT command Ok.
150 Open data connection.
226 Data connection closed.
ftp: 2797264 bytes sent in 16.84Seconds 166.07Kbytes/sec.
ftp> put data\MoMaruW2.CID
200 PORT command Ok.
150 Open data connection.
226 Data connection closed.
ftp: 3524325 bytes sent in 18.14Seconds 194.27Kbytes/sec.
ftp> put data\MoMincW2.CID
200 PORT command Ok.
150 Open data connection.
226 Data connection closed.
ftp: 3581348 bytes sent in 18.73Seconds 191.16Kbytes/sec.
ftp> put data\MoMincW3.CID
200 PORT command Ok.
150 Open data connection.
226 Data connection closed.
ftp: 3225832 bytes sent in 17.67Seconds 182.55Kbytes/sec.
ftp> bye
221 Quit.
Check to insure that the printer data LED flashing is terminated,
and reboot the main unit.
When the machine is rebooted, installation of the font data is com-
pleted.
Print the PS fonts list to check to insure that installation is com-
pleted properly.

D:\cidfont>
```

6) Reboot the main unit and print the PS fonts list to check to insure that the added fonts are registered.

c. Font uninstallation procedure

1) Open the DOS prompt.
2) Shift to the PS font directory in the CD-ROM.

```
> d:
> cd cidfont
```

(Note) The PS font data are stored in a hidden folder on the root directory of the PS driver CD-ROM. If the hidden folder setting is valid, the hidden folder is not displayed on the DOS prompt. To display it, disable the hidden folder setting.

Installation can be executed regardless of the above folder display. To disable the hidden folder setting, however, perform the following procedures.
(Right-click the "cidfont" folder in the CD-ROM to open the property. Click the general menu tab, and uncheck the hidden file check box.)

3) Execute the PS font install command. (Put "9" to the end of the uninstall command.)
   a) In the case of LAN connection (When the printer IP address is 10.36.14.191)

```
> install 1 10.36.14.191 9 ENTER KEY
> install 2 9 ENTER KEY
```

4) Execute the procedures according to the display.
   (Execute the underlined procedures.)

(Example)

```
D:\arpk4\cidfont>install 1 10.36.14.191 9
Delete the font directory in the hard disk.
To continue, press any key . . .
Connected to 10.36.14.191.
220 Sharp AR-NC5J Ver 01.01.01 FTP server.
331 Password required.
230 User Logged in.
Anonymous login succeeded for s018235@NAR-CLA137.ns1.nara.
sharp.co.jp
ftp> bin
200 Type set to I.
ftp> put delhddres.ps
200 PORT command Ok.
150 Open data connection.
226 Data connection closed.
ftp: 1210 bytes sent in 0.02Seconds 75.63Kbytes/sec.
ftp> bye
221 Quit.
Deleting . . .
Check to insure that the printer data LED flashing is terminated,
and reboot the main unit.
When the main unit is rebooted, the font data delete process is
completed.

C:\arpk4\cidfont>
```

5) After rebooting the main unit, print the PS fonts list to check to insure that the PS fonts have been uninstalled.

E. PS printer utility software installation

1) Referring to the AR-PK4 printer driver install guide, install the PS printer driver to the PC.
2) Check to insure that the PC can print in the PS mode by using the PS driver.

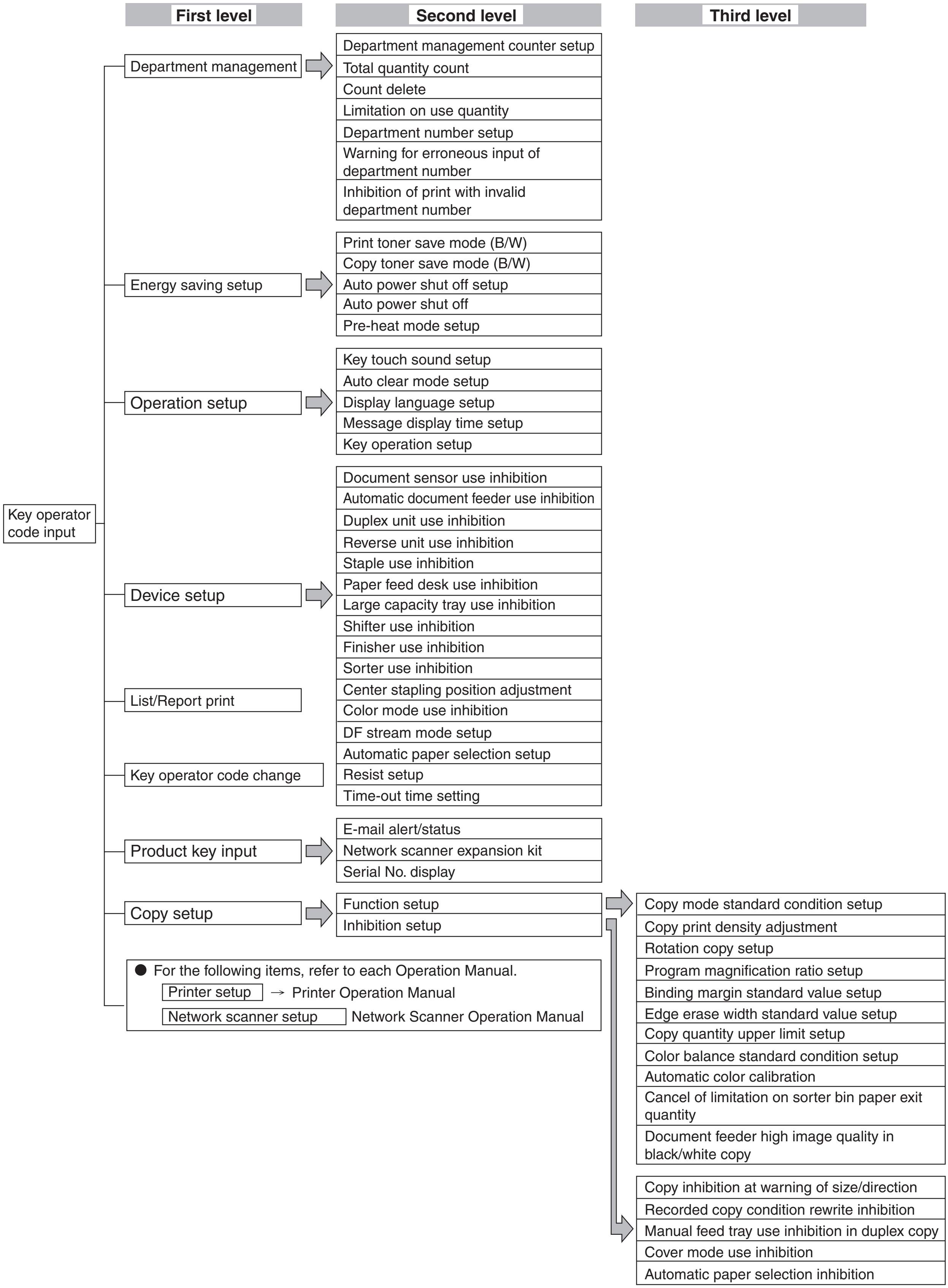
[15] OTHERS

1. Key operator program

A. Classification of set items

The set items of the key operator program are classified into the following three levels:

⁎ Some items have further lower levels (set menus).



First level | **Second level** | **Third level**

- Key operator code input
  - Department management
    - Department management counter setup
    - Total quantity count
    - Count delete
    - Limitation on use quantity
    - Department number setup
    - Warning for erroneous input of department number
    - Inhibition of print with invalid department number
  - Energy saving setup
    - Print toner save mode (B/W)
    - Copy toner save mode (B/W)
    - Auto power shut off setup
    - Auto power shut off
    - Pre-heat mode setup
  - Operation setup
    - Key touch sound setup
    - Auto clear mode setup
    - Display language setup
    - Message display time setup
    - Key operation setup
  - Device setup
    - Document sensor use inhibition
    - Automatic document feeder use inhibition
    - Duplex unit use inhibition
    - Reverse unit use inhibition
    - Staple use inhibition
    - Paper feed desk use inhibition
    - Large capacity tray use inhibition
    - Shifter use inhibition
    - Finisher use inhibition
    - Sorter use inhibition
    - Center stapling position adjustment
    - Color mode use inhibition
    - DF stream mode setup
    - Automatic paper selection setup
    - Resist setup
    - Time-out time setting
  - List/Report print
  - Key operator code change
  - Product key input
    - E-mail alert/status
    - Network scanner expansion kit
    - Serial No. display
  - Copy setup
    - Function setup
      - Copy mode standard condition setup
      - Copy print density adjustment
      - Rotation copy setup
      - Program magnification ratio setup
      - Binding margin standard value setup
      - Edge erase width standard value setup
      - Copy quantity upper limit setup
      - Color balance standard condition setup
      - Automatic color calibration
      - Cancel of limitation on sorter bin paper exit quantity
      - Document feeder high image quality in black/white copy
    - Inhibition setup
      - Copy inhibition at warning of size/direction
      - Recorded copy condition rewrite inhibition
      - Manual feed tray use inhibition in duplex copy
      - Cover mode use inhibition
      - Automatic paper selection inhibition

● For the following items, refer to each Operation Manual.

Printer setup → Printer Operation Manual

Network scanner setup Network Scanner Operation Manual

2. Special tools

No	Name	Part code	Purpose	Note
1	SIT chart (CCD gamma adjustment chart)	UKOG-0280FCZZ	Used to correct CCD gamma characteristics.	
2	Service color test chart	UKOG-0283FCZZ	Used to check color copy quality.	
3	Gray scale chart	UKOG-0162FCZZ	Used to check copy density.	
4	Service color test chart for printer	UKOG-0305FCZZ		New
5	Image density sensor adjustment jig	CPLTM6305FC01	Used to adjust the image density sensor. (Plate with calibration sheet)	New
		TLABZ4843FCZZ	Calibration sheet	New (for replacement)
6	Extension cable for measure high voltage	DHAi-3471FCZZ	Used to check the MC grid and DV bias voltage (Color)	New
7		DHAi-3472FCZZ	Used to check the MC grid and DV bias voltage (Black)	New
8	Starting powder	UKOG-0123FCZZ	Used to reduce friction between the transfer belt and the transfer belt cleaning blade.	
9	Cleaning cloth	UKOG-0289FCZZ	Used to clean the optical system. Wash to reuse.	
10	Level converter	UKOG-0002QSZZ (with serial cable)	Used to download the FLASH ROM program from a PC to the FLASH ROM on the machine.	Commercially available serial cable can be used.
		UKOG-0003QSZZ (without serial cable)		
11	FLASH ROM download program file	Mainte_xxxx.exe	Download (upgrade) the FLASH ROM program for main body section	
12		WDskxxx_d.pgm	Download (upgrade) the FLASH ROM program for Desk unit	
13	Spare FLASH ROM		FLASH ROM (16Mbit x 2) 1pc	The type (capacity) of Flash ROM is determined depending on the kind of Flash ROM (in the PCU PWB, in the ICU PWB, Printer control PWB or in the operation control PWB).
14			FLASH ROM (16Mbit) 1pc	
15			FLASH ROM (8Mbit) 2pcs	
16			FLASH ROM (32Mbit x 2) 2pcs	
17	Magnifying glass		Picture quality check (Mainly the color registration is checked.)	Purchase a commercially available one. (Magnification ratio:20 - 25)

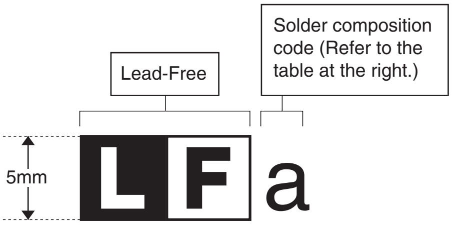
Memo

Memo

LEAD-FREE SOLDER

The PWB's of this model employs lead-free solder. The “LF” marks indicated on the PWB's and the Service Manual mean “Lead-Free” solder.
The alphabet following the LF mark shows the kind of lead-free solder.

Example:



<Solder composition code of lead-free solder>

Solder composition	Solder composition code
Sn-Ag-Cu	a
Sn-Ag-Bi Sn-Ag-Bi-Cu	b
Sn-Zn-Bi	z
Sn-In-Ag-Bi	i
Sn-Cu-Ni	n
Sn-Ag-Sb	s
Bi-Sn-Ag-P Bi-Sn-Ag	p

(1) NOTE FOR THE USE OF LEAD-FREE SOLDER THREAD

When repairing a lead-free solder PWB, use lead-free solder thread.

Never use conventional lead solder thread, which may cause a breakdown or an accident.

Since the melting point of lead-free solder thread is about 40°C higher than that of conventional lead solder thread, the use of the exclusive-use soldering iron is recommendable.

(2) NOTE FOR SOLDERING WORK

Since the melting point of lead-free solder is about 220°C, which is about 40°C higher than that of conventional lead solder, and its soldering capacity is inferior to conventional one, it is apt to keep the soldering iron in contact with the PWB for longer time. This may cause land separation or may exceed the heat-resistive temperature of components. Use enough care to separate the soldering iron from the PWB when completion of soldering is confirmed.

Since lead-free solder includes a greater quantity of tin, the iron tip may corrode easily. Turn ON/OFF the soldering iron power frequently.

If different-kind solder remains on the soldering iron tip, it is melted together with lead-free solder. To avoid this, clean the soldering iron tip after completion of soldering work.

If the soldering iron tip is discolored black during soldering work, clean and file the tip with steel wool or a fine filer.

CAUTION FOR BATTERY REPLACEMENT

(Danish) ADVARSEL !

Lithiumbatteri – Eksplosionsfare ved fejlagtig håndtering.
Udskiftning må kun ske med batteri
af samme fabrikat og type.
Levér det brugte batteri tilbage til leverandoren.

(English) Caution !

Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type
recommended by the manufacturer.
Dispose of used batteries according to manufacturer's instructions.

(Finnish) VAROITUS

Paristo voi räjähtää, jos se on virheellisesti asennettu.
Vaihda paristo ainoastaan laitevalmistajan suosittelemaan
tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden
mukaisesti.

(French) ATTENTION

Il y a danger d'explosion s' il y a remplacement incorrect
de la batterie. Remplacer uniquement avec une batterie du
même type ou d'un type équivalent recommandé par
le constructeur.
Mettre au rebut les batteries usagées conformément aux
instructions du fabricant.

(Swedish) VARNING

Explosionsfara vid felaktigt batteribyte.
Använd samma batterityp eller en ekvivalent
typ som rekommenderas av apparattillverkaren.
Kassera använt batteri enligt fabrikantens
instruktion.

(German) Achtung

Explosionsgefahr bei Verwendung inkorrekter Batterien.
Als Ersatzbatterien dürfen nur Batterien vom gleichen Typ oder
vom Hersteller empfohlene Batterien verwendet werden.
Entsorgung der gebrauchten Batterien nur nach den vom
Hersteller angegebenen Anweisungen.

CAUTION FOR BATTERY DISPOSAL

(For USA, CANADA)

"BATTERY DISPOSAL"

THIS PRODUCT CONTAINS A LITHIUM PRIMARY (MANGANESS DIOXIDE) MEMORY BACK-UP BATTERY THAT MUST BE DISPOSED OF PROPERLY. REMOVE THE BATTERY FROM THE PRODUCT AND CONTACT YOUR LOCAL ENVIRONMENTAL AGENCIES FOR INFORMATION ON RECYCLING AND DISPOSAL OPTIONS.

"TRAITEMENT DES PILES USAGÉES"

CE PRODUIT CONTIENT UNE PILE DE SAUVEGARDE DE MÉMOIRE LITHIUM PRIMAIRE (DIOXYDE DE MANGANÈSE) QUI DOIT ÊTRE TRAITÉE CORRECTEMENT. ENLEVEZ LA PILE DU PRODUIT ET PRENEZ CONTACT AVEC VOTRE AGENCE ENVIRONNEMENTALE LOCALE POUR DES INFORMATIONS SUR LES MÉTHODES DE RECYCLAGE ET DE TRAITEMENT.

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